

# SEQUENCE LISTING

<110> Kapeller-Libermann, Rosana  
Acton, Susan L.

<120> 59079 and 12599, Protein Kinase Family  
Members and Uses Therefor

<130> MPI2001-047P1RCP1(M)

<150> 60/269201

<151> 2001-02-15

<160> 9

<170> FastSEQ for Windows Version 4.0

<210> 1

<211> 8106

<212> DNA

<213> Homo sapiens

<220>

<221> 5'UTR

<222> (1)...(71)

<221> CDS

<222> (72)...(7964)

<221> 3'UTR

<222> (7965)...(8106)

<400> 1

ggcacaccct ggagatcatc tccgtcaccc gggaggactc tggccagtat gcagcctata 60  
tcagcaatgc c atg ggt gct gcc tac tcg tct gcc cgg ctg ctg gtt cga 110  
Met Gly Ala Ala Tyr Ser Ser Ala Arg Leu Leu Val Arg  
1 5 10

ggc cct gat gag cca gaa gag aag cct gca tca gat gtg cat gag cag 158  
Gly Pro Asp Glu Pro Glu Glu Lys Pro Ala Ser Asp Val His Glu Gln  
15 20 25

ctg gtg ccg ccc cga atg ctg gag agg ttc acc ccc aag aaa gtg aag 206  
Leu Val Pro Pro Arg Met Leu Glu Arg Phe Thr Pro Lys Lys Val Lys  
30 35 40 45

aaa ggc tcc agc atc acc ttc tct gtg aag gta gaa gga cgc ccg gtg 254  
Lys Gly Ser Ser Ile Thr Phe Ser Val Lys Val Glu Gly Arg Pro Val  
50 55 60

ccc acc gtg cac tgg ctc agg gag gag gct gag aga ggc gtg ctg tgg 302  
Pro Thr Val His Trp Leu Arg Glu Glu Ala Glu Arg Gly Val Leu Trp  
65 70 75

att ggc cct gac aca ccg ggc tac acc gtg gcc agc tct gcg cag cag 350  
Ile Gly Pro Asp Thr Pro Gly Tyr Thr Val Ala Ser Ser Ala Gln Gln  
80 85 90

cac agc ctg gtc ctg ctg gac gtg ggc cgg cag cac cag ggc acc tac 398  
His Ser Leu Val Leu Leu Asp Val Gly Arg Gln His Gln Gly Thr Tyr

95	100	105	
aca tgc att gcc agc aac gct gcc ggc cag gcc ctc tgc tcc gcc agc			446
Thr Cys Ile Ala Ser Asn Ala Ala Gly Gln Ala Leu Cys Ser Ala Ser			
110	115	120	125
ctg cac gtc tcg ggc ctg cct aag gtg gag gag cag gag aaa gtg aag			494
Leu His Val Ser Gly Leu Pro Lys Val Glu Glu Gln Glu Lys Val Lys			
	130	135	140
gaa gcg ctg att tcc act ttc ctg cag ggg acc aca caa gcc atc tca			542
Glu Ala Leu Ile Ser Thr Phe Leu Gln Gly Thr Thr Gln Ala Ile Ser			
	145	150	155
gca cag ggg ttg gaa act gcg agt ttt gct gac ctt ggt ggg cag agg			590
Ala Gln Gly Leu Glu Thr Ala Ser Phe Ala Asp Leu Gly Gly Gln Arg			
	160	165	170
aaa gaa gag cct ctg gct gcc aag gag gcc ctc ggc cac ctg tcc ctc			638
Lys Glu Glu Pro Leu Ala Ala Lys Glu Ala Leu Gly His Leu Ser Leu			
	175	180	185
gct gag gtg ggc aca gag gag ttc ctg cag aaa ctg acc tcc cag atc			686
Ala Glu Val Gly Thr Glu Glu Phe Leu Gln Lys Leu Thr Ser Gln Ile			
	190	195	200
act gag atg gta tcg gcc aag atc acg cag gcc aag ctg cag gtg ccc			734
Thr Glu Met Val Ser Ala Lys Ile Thr Gln Ala Lys Leu Gln Val Pro			
	210	215	220
gga ggt gac agt gat gag gac tcc aag aca cca tct gca tcc ccc cgc			782
Gly Gly Asp Ser Asp Glu Asp Ser Lys Thr Pro Ser Ala Ser Pro Arg			
	225	230	235
cat ggc cga tca cgg cca tcc tcc agc atc cag gag tct tcc tca gag			830
His Gly Arg Ser Arg Pro Ser Ser Ser Ile Gln Glu Ser Ser Ser Glu			
	240	245	250
tca gag gac ggc gat gcc cga ggc gag atc ttt gac atc tac gtg gtc			878
Ser Glu Asp Gly Asp Ala Arg Gly Glu Ile Phe Asp Ile Tyr Val Val			
	255	260	265
acc gct gac tac ctg ccc cta ggg gct gag cag gat gcc atc acg ctg			926
Thr Ala Asp Tyr Leu Pro Leu Gly Ala Glu Gln Asp Ala Ile Thr Leu			
	270	275	280
cgg gaa ggc cag tat gtg gag gtc ctg gat gca gcc cac cca ctg cgc			974
Arg Glu Gly Gln Tyr Val Glu Val Leu Asp Ala Ala His Pro Leu Arg			
	290	295	300
tgg ctt gtc cgc acc aag ccc acc aag tcc agc ccc tca cgg cag ggc			1022
Trp Leu Val Arg Thr Lys Pro Thr Lys Ser Ser Pro Ser Arg Gln Gly			
	305	310	315
tgg gtg tca cca gcc tac ctg gac agg agg ctc aag ctg tca cct gag			1070
Trp Val Ser Pro Ala Tyr Leu Asp Arg Arg Leu Lys Leu Ser Pro Glu			
	320	325	330
tgg ggg gcc gct gag gcc cct gag ttc cct ggg gag gct gtg tct gaa			1118
Trp Gly Ala Ala Glu Ala Pro Glu Phe Pro Gly Glu Ala Val Ser Glu			
	335	340	345

gac gaa tac aag gca agg ctg agc tct gtg atc cag gag ctg ctg agt	1166
Asp Glu Tyr Lys Ala Arg Leu Ser Ser Val Ile Gln Glu Leu Leu Ser	
350 355 360 365	
tct gag cag gcc ttc gtg gag gag ctg cag ttc ctg cag agc cac cac	1214
Ser Glu Gln Ala Phe Val Glu Glu Leu Gln Phe Leu Gln Ser His His	
370 375 380	
ctg cag cac ctg gag cgc tgc ccc cac gtg ccc ata gcc gtg gcc ggc	1262
Leu Gln His Leu Glu Arg Cys Pro His Val Pro Ile Ala Val Ala Gly	
385 390 395	
cag aag gca gtc atc ttc cgc aat gtg cgg gac atc ggc cgc ttc cac	1310
Gln Lys Ala Val Ile Phe Arg Asn Val Arg Asp Ile Gly Arg Phe His	
400 405 410	
agc agc ttc ctg cag gag ttg cag cag tgc gac acg gac gac gac gtg	1358
Ser Ser Phe Leu Gln Glu Leu Gln Gln Cys Asp Thr Asp Asp Asp Val	
415 420 425	
gcc atg tgc ttc atc aag aac cag gcg gcc ttt gag cag tac ctg gag	1406
Ala Met Cys Phe Ile Lys Asn Gln Ala Ala Phe Glu Gln Tyr Leu Glu	
430 435 440 445	
ttc ctg gtg ggg cgt gtg cag gct gag tcg gtg gtc gtc agc acg gcc	1454
Phe Leu Val Gly Arg Val Gln Ala Glu Ser Val Val Val Ser Thr Ala	
450 455 460	
atc cag gag ttc tac aag aaa tac gcg gag gag gcc ctg ttg gca ggg	1502
Ile Gln Glu Phe Tyr Lys Lys Tyr Ala Glu Glu Ala Leu Leu Ala Gly	
465 470 475	
gac ccc tct cag ccc ccg cca cca cct ctg cag cac tac ctg gag cag	1550
Asp Pro Ser Gln Pro Pro Pro Pro Pro Leu Gln His Tyr Leu Glu Gln	
480 485 490	
cca gtg gag cgg gtg cag cgc tac cag gcc ttg ctg aag gag ttg atc	1598
Pro Val Glu Arg Val Gln Arg Tyr Gln Ala Leu Leu Lys Glu Leu Ile	
495 500 505	
cgc aac aag gcg cgg aac aga cag aac tgc gcg ctg ctg gag cag gcc	1646
Arg Asn Lys Ala Arg Asn Arg Gln Asn Cys Ala Leu Leu Glu Gln Ala	
510 515 520 525	
tat gcc gtg gtg tct gcc ctg cca cag cgc gct gag aac aag ctg cac	1694
Tyr Ala Val Val Ser Ala Leu Pro Gln Arg Ala Glu Asn Lys Leu His	
530 535 540	
gtg tcc ctc atg gag aac tac cca ggc acc ctg gag gcc ctg ggc gag	1742
Val Ser Leu Met Glu Asn Tyr Pro Gly Thr Leu Glu Ala Leu Gly Glu	
545 550 555	
ccc atc cgc cag ggc cac ttc atc gtg tgg gag ggt gca ccg ggg gcc	1790
Pro Ile Arg Gln Gly His Phe Ile Val Trp Glu Gly Ala Pro Gly Ala	
560 565 570	
cgc atg ccc tgg aag ggc cac aac cgt cac gtg ttc ctc ttc cgc aac	1838
Arg Met Pro Trp Lys Gly His Asn Arg His Val Phe Leu Phe Arg Asn	
575 580 585	

cac ctg gta atc tgc aag ccc cgg cga gac tcc cgc acc gat acc gtc	1886
His Leu Val Ile Cys Lys Pro Arg Arg Asp Ser Arg Thr Asp Thr Val	
590 595 600 605	
agc tac gtg ttc cgg aac atg atg aag ctg agc agc atc gac ctg aac	1934
Ser Tyr Val Phe Arg Asn Met Met Lys Leu Ser Ser Ile Asp Leu Asn	
610 615 620	
gac cag gtg gag ggg gat gac cgc gcc ttc gag gtg tgg cag gag cgg	1982
Asp Gln Val Glu Gly Asp Asp Arg Ala Phe Glu Val Trp Gln Glu Arg	
625 630 635	
gag gac tcg gtg cgc aag tac ctg ctg cag gca cgg aca gcc att atc	2030
Glu Asp Ser Val Arg Lys Tyr Leu Leu Gln Ala Arg Thr Ala Ile Ile	
640 645 650	
aag agc tcg tgg gtg aag gag atc tgt ggc atc cag cag cgt ctg gcc	2078
Lys Ser Ser Trp Val Lys Glu Ile Cys Gly Ile Gln Gln Arg Leu Ala	
655 660 665	
ctg cct gtg tgg cgg ccc ccg gac ttt gaa gag gag ctg gcc gac tgc	2126
Leu Pro Val Trp Arg Pro Pro Asp Phe Glu Glu Glu Leu Ala Asp Cys	
670 675 680 685	
aca gcc gag ctg ggt gag aca gtc aag ctg gcc tgc cgc gtg acg ggc	2174
Thr Ala Glu Leu Gly Glu Thr Val Lys Leu Ala Cys Arg Val Thr Gly	
690 695 700	
aca ccc aag cct gtc atc agc tgg tac aaa gat ggg aaa gca gtg cag	2222
Thr Pro Lys Pro Val Ile Ser Trp Tyr Lys Asp Gly Lys Ala Val Gln	
705 710 715	
gtg gac ccc cac cac atc ctc att gaa gac cct gat ggc tcg tgt gca	2270
Val Asp Pro His His Ile Leu Ile Glu Asp Pro Asp Gly Ser Cys Ala	
720 725 730	
ctc atc ctg gac agc ctg acc ggt gtg gac tct ggc cag tac atg tgc	2318
Leu Ile Leu Asp Ser Leu Thr Gly Val Asp Ser Gly Gln Tyr Met Cys	
735 740 745	
ttc gcg gcc agc gcc gct ggc aac tgc agt acc ctg ggc aag atc ctg	2366
Phe Ala Ala Ser Ala Ala Gly Asn Cys Ser Thr Leu Gly Lys Ile Leu	
750 755 760 765	
gtg caa gtc cca cca cgg ttc gtg aac aag gtc cgg gcc tca ccc ttt	2414
Val Gln Val Pro Pro Arg Phe Val Asn Lys Val Arg Ala Ser Pro Phe	
770 775 780	
gtg gag gga gag gac gcc cag ttc acc tgc acc atc gaa ggc gcc ccg	2462
Val Glu Gly Glu Asp Ala Gln Phe Thr Cys Thr Ile Glu Gly Ala Pro	
785 790 795	
tac ccg cag atc agg tgg tac aag gac ggg gcc ctg ctg acc act ggc	2510
Tyr Pro Gln Ile Arg Trp Tyr Lys Asp Gly Ala Leu Leu Thr Thr Gly	
800 805 810	
aac aag ttc cag aca ctg agt gag cct cgc agc ggc ctg cta gtg ctg	2558
Asn Lys Phe Gln Thr Leu Ser Glu Pro Arg Ser Gly Leu Leu Val Leu	
815 820 825	
gtg atc cgg gcg gcc agc aag gag gac ctg ggg ctc tac gag tgt gag	2606

Val Ile Arg Ala Ala Ser Lys Glu Asp Leu Gly Leu Tyr Glu Cys Glu	
830 835 840 845	
ctg gtg aac cgg ctg ggc tcc gcg cgg gct agt gcg gag ctg cgc att	2654
Leu Val Asn Arg Leu Gly Ser Ala Arg Ala Ser Ala Glu Leu Arg Ile	
850 855 860	
cag agc ccc atg ctg cag gcc cag gag cag tgt cac agg gag cag ctc	2702
Gln Ser Pro Met Leu Gln Ala Gln Glu Gln Cys His Arg Glu Gln Leu	
865 870 875	
gtg gct gca gtg gaa gac acc acc ctg gag cga gcg gac cag gag gtc	2750
Val Ala Ala Val Glu Asp Thr Thr Leu Glu Arg Ala Asp Gln Glu Val	
880 885 890	
aca tct gtc ctg aag aga ctg ctg ggc ccc aag gcg cca ggc ccc tcc	2798
Thr Ser Val Leu Lys Arg Leu Leu Gly Pro Lys Ala Pro Gly Pro Ser	
895 900 905	
aca ggg gac ctc act ggc cct ggc ccc tgc ccc agg ggg gca ccc gca	2846
Thr Gly Asp Leu Thr Gly Pro Gly Pro Cys Pro Arg Gly Ala Pro Ala	
910 915 920 925	
ctc cag gaa acc ggc tcc cag ccc cca gtc acc gga act tcg gag gca	2894
Leu Gln Glu Thr Gly Ser Gln Pro Pro Val Thr Gly Thr Ser Glu Ala	
930 935 940	
cct gcc gtg ccc ccg agg gtg cca cag ccc ctc ctc cac gaa ggc cca	2942
Pro Ala Val Pro Pro Arg Val Pro Gln Pro Leu Leu His Glu Gly Pro	
945 950 955	
gag cag gag ccg gag gcc att gcc aga gcc cag gaa tgg act gtg ccc	2990
Glu Gln Glu Pro Glu Ala Ile Ala Arg Ala Gln Glu Trp Thr Val Pro	
960 965 970	
att cgg atg gag ggt gca gcc tgg ccc ggg gca ggc aca ggg gag ctg	3038
Ile Arg Met Glu Gly Ala Ala Trp Pro Gly Ala Gly Thr Gly Glu Leu	
975 980 985	
ctc tgg gac gtc cac agc cac gtg gtc aga gag acc aca cag agg acc	3086
Leu Trp Asp Val His Ser His Val Val Arg Glu Thr Thr Gln Arg Thr	
990 995 1000 1005	
tac aca tac cag gcc atc gac acg cac acc gca cgg ccc cca tcc atg	3134
Tyr Thr Tyr Gln Ala Ile Asp Thr His Thr Ala Arg Pro Pro Ser Met	
1010 1015 1020	
cag gta acc atc gag gat gtg cag gca cag aca ggc gga acg gcc caa	3182
Gln Val Thr Ile Glu Asp Val Gln Ala Gln Thr Gly Gly Thr Ala Gln	
1025 1030 1035	
ttc gag gct atc att gag ggc gac cca cag ccc tcg gtg acc tgg tac	3230
Phe Glu Ala Ile Ile Glu Gly Asp Pro Gln Pro Ser Val Thr Trp Tyr	
1040 1045 1050	
aag gac agc gtc cag ctg gtg gac agc acc cgg ctt agc cag cag caa	3278
Lys Asp Ser Val Gln Leu Val Asp Ser Thr Arg Leu Ser Gln Gln Gln	
1055 1060 1065	
gaa ggc acc aca tac tcc ctg gtg ctg agg cat gtg gcc tcg aag gat	3326
Glu Gly Thr Thr Tyr Ser Leu Val Leu Arg His Val Ala Ser Lys Asp	

1070	1075	1080	1085	
gcc ggc gtt tac acc tgc ctg gcc caa aac act ggt ggc cag gtg ctc				3374
Ala Gly Val Tyr	Thr Cys Leu Ala Gln Asn Thr Gly Gly Gln Val Leu			
	1090	1095	1100	
tgc aag gca gag ctg ctg gtg ctt ggg ggg gac aat gag ccg gac tca				3422
Cys Lys Ala	Glu Leu Leu Val Leu Gly Gly Asp Asn Glu Pro Asp Ser			
	1105	1110	1115	
gag aag caa agc cac cgg agg aag ctg cac tcc ttc tat gag gtc aag				3470
Glu Lys	Gln Ser His Arg Arg Lys Leu His Ser Phe Tyr Glu Val Lys			
	1120	1125	1130	
gag gag att gga agg ggc gtg ttt ggc ttc gta aaa aga gtg cag cac				3518
Glu Glu Ile Gly Arg Gly Val Phe Gly Phe Val Lys Arg Val Gln His				
	1135	1140	1145	
aaa gga aac aag atc ttg tgc gct gcc aag ttc atc ccc cta cgg agc				3566
Lys Gly Asn Lys Ile Leu Cys Ala Ala Lys Phe Ile Pro Leu Arg Ser				
	1150	1155	1160	1165
aga act cgg gcc cag gca tac agg gag cga gac atc ctg gcc gcg ctg				3614
Arg Thr Arg	Gln Ala Tyr Arg Glu Arg Asp Ile Leu Ala Ala Leu			
	1170	1175	1180	
agc cac ccg ctg gtc acg ggg ctg ctg gac cag ttt gag acc cgc aag				3662
Ser His Pro Leu Val Thr Gly Leu Leu Asp Gln Phe Glu Thr Arg Lys				
	1185	1190	1195	
acc ctc atc ctc atc ctg gag ctg tgc tca tcc gag gag ctg ctg gac				3710
Thr Leu Ile Leu Ile Leu Glu Leu Cys Ser Ser Glu Glu Leu Leu Asp				
	1200	1205	1210	
cgc ctg tac agg aag ggc gtg gtg acg gag gcc gag gtc aag gtc tac				3758
Arg Leu Tyr Arg Lys Gly Val Val Thr Glu Ala Glu Val Lys Val Tyr				
	1215	1220	1225	
atc cag cag ctg gtg gag ggg ctg cac tac ctg cac agc cat ggc gtt				3806
Ile Gln Gln Leu Val Glu Gly Leu His Tyr Leu His Ser His Gly Val				
	1230	1235	1240	1245
ctc cac ctg gac ata aag ccc tct aac atc ctg atg gtg cat cct gcc				3854
Leu His Leu Asp Ile Lys Pro Ser Asn Ile Leu Met Val His Pro Ala				
	1250	1255	1260	
cgg gaa gac att aaa atc tgc gac ttt ggc ttt gcc cag aac atc acc				3902
Arg Glu Asp Ile Lys Ile Cys Asp Phe Gly Phe Ala Gln Asn Ile Thr				
	1265	1270	1275	
cca gca gag ctg cag ttc agc cag tac ggc tcc cct gag ttc gtc tcc				3950
Pro Ala Glu Leu Gln Phe Ser Gln Tyr Gly Ser Pro Glu Phe Val Ser				
	1280	1285	1290	
ccc gag atc atc cag cag aac cct gtg agc gaa gcc tcc gac att tgg				3998
Pro Glu Ile Ile Gln Gln Asn Pro Val Ser Glu Ala Ser Asp Ile Trp				
	1295	1300	1305	
gcc atg ggt gtc atc tcc tac ctc agc ctg acc tgc tca tcc cca ttt				4046
Ala Met Gly Val Ile Ser Tyr Leu Ser Leu Thr Cys Ser Ser Pro Phe				
	1310	1315	1320	1325

gcc ggc gag agt gac cgt gcc acc ctc ctg aac gtc ctg gag ggg cgc	4094
Ala Gly Glu Ser Asp Arg Ala Thr Leu Leu Asn Val Leu Glu Gly Arg	
1330 1335 1340	
gtg tca tgg agc agc ccc atg gct gcc cac ctc agc gaa gac gcc aaa	4142
Val Ser Trp Ser Ser Pro Met Ala Ala His Leu Ser Glu Asp Ala Lys	
1345 1350 1355	
gac ttc atc aag gct acg ctg cag aga gcc cct cag gcc cgg cct agt	4190
Asp Phe Ile Lys Ala Thr Leu Gln Arg Ala Pro Gln Ala Arg Pro Ser	
1360 1365 1370	
gcg gcc cag tgc ctc tcc cac ccc tgg ttc ctg aaa tcc atg cct gcg	4238
Ala Ala Gln Cys Leu Ser His Pro Trp Phe Leu Lys Ser Met Pro Ala	
1375 1380 1385	
gag gag gcc cac ttc atc aac acc aag cag ctc aag ttc ctc ctg gcc	4286
Glu Glu Ala His Phe Ile Asn Thr Lys Gln Leu Lys Phe Leu Leu Ala	
1390 1395 1400 1405	
cga agt cgc tgg cag cgt tcc ctg atg agc tac aag tcc atc ctg gtg	4334
Arg Ser Arg Trp Gln Arg Ser Leu Met Ser Tyr Lys Ser Ile Leu Val	
1410 1415 1420	
atg cgc tcc atc cct gag ctg ctg cgg ggc cca ccc gac agc ccc tcc	4382
Met Arg Ser Ile Pro Glu Leu Leu Arg Gly Pro Pro Asp Ser Pro Ser	
1425 1430 1435	
ctc ggc gta gcc cgg cac ctc tgc agg gac act ggt ggc tcc tcc agt	4430
Leu Gly Val Ala Arg His Leu Cys Arg Asp Thr Gly Gly Ser Ser Ser	
1440 1445 1450	
tcc tcc tcc tcc tct gac aac gag ctc gcc cca ttt gcc cgg gct aag	4478
Ser Ser Ser Ser Ser Asp Asn Glu Leu Ala Pro Phe Ala Arg Ala Lys	
1455 1460 1465	
tca ctg cca ccc tcc ccg gtg aca cac tca cca ctg ctg cac ccc cgg	4526
Ser Leu Pro Pro Ser Pro Val Thr His Ser Pro Leu Leu His Pro Arg	
1470 1475 1480 1485	
ggc ttc ctg cgg ccc tcg gcc agc ctg cct gag gaa gcc gag gcc agt	4574
Gly Phe Leu Arg Pro Ser Ala Ser Leu Pro Glu Glu Ala Glu Ala Ser	
1490 1495 1500	
gag cgc tcc acc gag gcc cca gct ccg cct gca tct ccc gag ggt gcc	4622
Glu Arg Ser Thr Glu Ala Pro Ala Pro Pro Ala Ser Pro Glu Gly Ala	
1505 1510 1515	
ggg cca ccg gcc gcc cag ggc tgc gtg ccc cgg cac agc gtc atc cgc	4670
Gly Pro Pro Ala Ala Gln Gly Cys Val Pro Arg His Ser Val Ile Arg	
1520 1525 1530	
agc ctg ttc tac cac cag gcg ggt gag agc cct gag cac ggg gcc ctg	4718
Ser Leu Phe Tyr His Gln Ala Gly Glu Ser Pro Glu His Gly Ala Leu	
1535 1540 1545	
gcc ccg ggg agc agg ccg cac ccg gcc ccg ccg ccg cac ctg ctg aag	4766
Ala Pro Gly Ser Arg Arg His Pro Ala Arg Arg Arg His Leu Leu Lys	
1550 1555 1560 1565	

ggc ggg tac att gcg ggg gcg ctg cca ggc ctg cgc gag cca ctg atg	4814
Gly Gly Tyr Ile Ala Gly Ala Leu Pro Gly Leu Arg Glu Pro Leu Met	
1570 1575 1580	
gag cac cgc gtg ctg gag gag gag gcc gcc agg gag gag cag gcc acc	4862
Glu His Arg Val Leu Glu Glu Glu Ala Ala Arg Glu Glu Gln Ala Thr	
1585 1590 1595	
ctc ctg gcc aaa gcc ccc tca ttc gag act gcc ctc cgg ctg cct gcc	4910
Leu Leu Ala Lys Ala Pro Ser Phe Glu Thr Ala Leu Arg Leu Pro Ala	
1600 1605 1610	
tct ggc acc cac ttg gcc cct ggc cac agc cac tcc ctg gaa cat gac	4958
Ser Gly Thr His Leu Ala Pro Gly His Ser His Ser Leu Glu His Asp	
1615 1620 1625	
tct ccg agc acc ccc cgc ccc tcc tcc gag gcc tgc ggt gag gca cag	5006
Ser Pro Ser Thr Pro Arg Pro Ser Ser Glu Ala Cys Gly Glu Ala Gln	
1630 1635 1640 1645	
cga ctg cct tca gcc ccc tcc ggg ggg gcc cct atc agg gac atg ggg	5054
Arg Leu Pro Ser Ala Pro Ser Gly Gly Ala Pro Ile Arg Asp Met Gly	
1650 1655 1660	
cac cct cag ggc tcc aag cag ctt cca tcc act ggt ggc cac cca ggc	5102
His Pro Gln Gly Ser Lys Gln Leu Pro Ser Thr Gly Gly His Pro Gly	
1665 1670 1675	
act gct cag cca gag agg cca tcc ccg gac agc cct tgg ggg cag cca	5150
Thr Ala Gln Pro Glu Arg Pro Ser Pro Asp Ser Pro Trp Gly Gln Pro	
1680 1685 1690	
gcc cct ttc tgc cac ccc aag cag ggt tct gcc ccc cag gag ggc tgc	5198
Ala Pro Phe Cys His Pro Lys Gln Gly Ser Ala Pro Gln Glu Gly Cys	
1695 1700 1705	
agc ccc cac cca gca gtt gcc cca tgc cct cct ggc tcc ttc cct cca	5246
Ser Pro His Pro Ala Val Ala Pro Cys Pro Pro Gly Ser Phe Pro Pro	
1710 1715 1720 1725	
gga tct tgc aaa gag gcc ccc tta gta ccc tca agc ccc ttc ttg gga	5294
Gly Ser Cys Lys Glu Ala Pro Leu Val Pro Ser Ser Pro Phe Leu Gly	
1730 1735 1740	
cag ccc cag gca ccc cct gcc cct gcc aaa gca agc ccc cca ttg gac	5342
Gln Pro Gln Ala Pro Pro Ala Pro Ala Lys Ala Ser Pro Pro Leu Asp	
1745 1750 1755	
tct aag atg ggg cct gga gac atc tct ctt cct ggg agg cca aaa ccc	5390
Ser Lys Met Gly Pro Gly Asp Ile Ser Leu Pro Gly Arg Pro Lys Pro	
1760 1765 1770	
ggc ccc tgc agt tcc cca ggg tca gcc tcc cag gcg agc tct tcc caa	5438
Gly Pro Cys Ser Ser Pro Gly Ser Ala Ser Gln Ala Ser Ser Ser Gln	
1775 1780 1785	
gtg agc tcc ctc agg gtg ggc tcc tcc cag gtg ggc aca gag cct ggc	5486
Val Ser Ser Leu Arg Val Gly Ser Ser Gln Val Gly Thr Glu Pro Gly	
1790 1795 1800 1805	
ccc tcc ctg gat gcg gag ggc tgg acc cag gag gct gag gat ctg tcc	5534



Pro	Ser	Leu	Asp	Ala	Glu	Gly	Trp	Thr	Gln	Glu	Ala	Glu	Asp	Leu	Ser		
				1810					1815					1820			
gac	tcc	aca	ccc	acc	ttg	cag	cgg	cct	cag	gaa	cag	gcg	acc	atg	cgc	5582	
Asp	Ser	Thr	Pro	Thr	Leu	Gln	Arg	Pro	Gln	Glu	Gln	Ala	Thr	Met	Arg		
				1825				1830						1835			
aag	ttc	tcc	ctg	ggc	ggc	cgc	ggg	ggc	tac	gca	ggc	gtg	gct	ggc	tat	5630	
Lys	Phe	Ser	Leu	Gly	Gly	Arg	Gly	Gly	Tyr	Ala	Gly	Val	Ala	Gly	Tyr		
				1840				1845						1850			
ggc	acc	ttt	gcc	ttt	ggc	gga	gat	gca	ggg	ggc	atg	ctg	ggg	cag	ggg	5678	
Gly	Thr	Phe	Ala	Phe	Gly	Gly	Asp	Ala	Gly	Gly	Met	Leu	Gly	Gln	Gly		
				1855				1860						1865			
ccc	atg	tgg	gcc	agg	ata	gcc	tgg	gct	gtg	tcc	cag	tcg	gag	gag	gag	5726	
Pro	Met	Trp	Ala	Arg	Ile	Ala	Trp	Ala	Val	Ser	Gln	Ser	Glu	Glu	Glu		
					1870					1880					1885		
gag	cag	gag	gag	gcc	agg	gct	gag	tcc	cag	tcg	gag	gag	cag	cag	gag	5774	
Glu	Gln	Glu	Glu	Ala	Arg	Ala	Glu	Ser	Gln	Ser	Glu	Glu	Gln	Gln	Glu		
				1890					1895						1900		
gcc	agg	gct	gag	agc	cca	ctg	ccc	cag	gtc	agt	gca	agg	cct	gtg	cct	5822	
Ala	Arg	Ala	Glu	Ser	Pro	Leu	Pro	Gln	Val	Ser	Ala	Arg	Pro	Val	Pro		
				1905				1910					1915				
gag	gtc	ggc	agg	gct	ccc	acc	agg	agc	tct	cca	gag	ccc	acc	cca	tgg	5870	
Glu	Val	Gly	Arg	Ala	Pro	Thr	Arg	Ser	Ser	Pro	Glu	Pro	Thr	Pro	Trp		
				1920				1925						1930			
gag	gac	atc	ggg	cag	gtc	tcc	ctg	gtg	cag	atc	cgg	gac	ctg	tca	ggt	5918	
Glu	Asp	Ile	Gly	Gln	Val	Ser	Leu	Val	Gln	Ile	Arg	Asp	Leu	Ser	Gly		
				1935				1940					1945				
gat	gcg	gag	gcg	gcc	gac	aca	ata	tcc	ctg	gac	att	tcc	gag	gtg	gac	5966	
Asp	Ala	Glu	Ala	Ala	Asp	Thr	Ile	Ser	Leu	Asp	Ile	Ser	Glu	Val	Asp		
					1950			1955			1960				1965		
ccc	gcc	tac	ctc	aac	ctc	tca	gac	ctg	tac	gat	atc	aag	tac	ctc	cca	6014	
Pro	Ala	Tyr	Leu	Asn	Leu	Ser	Asp	Leu	Tyr	Asp	Ile	Lys	Tyr	Leu	Pro		
				1970					1975						1980		
ttc	gag	ttt	atg	atc	ttc	agg	aaa	gtc	ccc	aag	tcc	gct	cag	cca	gag	6062	
Phe	Glu	Phe	Met	Ile	Phe	Arg	Lys	Val	Pro	Lys	Ser	Ala	Gln	Pro	Glu		
				1985				1990							1995		
ccg	ccc	tcc	ccc	atg	gct	gag	gag	gag	ctg	gcc	gag	ttc	ccg	gag	ccc	6110	
Pro	Pro	Ser	Pro	Met	Ala	Glu	Glu	Glu	Leu	Ala	Glu	Phe	Pro	Glu	Pro		
				2000				2005						2010			
acg	tgg	ccc	tgg	cca	ggc	gaa	ctg	ggc	ccc	cac	gca	ggc	ctg	gag	atc	6158	
Thr	Trp	Pro	Trp	Pro	Gly	Glu	Leu	Gly	Pro	His	Ala	Gly	Leu	Glu	Ile		
				2015				2020						2025			
aca	gag	gag	tca	gag	gat	gtg	gac	gcg	ctg	ctg	gca	gag	gct	gcc	gtg	6206	
Thr	Glu	Glu	Ser	Glu	Asp	Val	Asp	Ala	Leu	Leu	Ala	Glu	Ala	Ala	Val		
					2030					2040					2045		
ggc	agg	aag	cgc	aag	tgg	tcc	tcg	ccg	tca	cgc	agc	ctc	ttc	cac	ttc	6254	
Gly	Arg	Lys	Arg	Lys	Trp	Ser	Ser	Pro	Ser	Arg	Ser	Leu	Phe	His	Phe		

	2050	2055	2060	
	cct ggg agg cac ctg ccg ctg gat gag cct gca gag ctg ggg ctg cgt			6302
	Pro Gly Arg His Leu Pro Leu Asp Glu Pro Ala Glu Leu Gly Leu Arg			
	2065	2070	2075	
	gag aga gtg aag gcc tcc gtg gag cac atc tcc cgg atc ctg aag ggc			6350
	Glu Arg Val Lys Ala Ser Val Glu His Ile Ser Arg Ile Leu Lys Gly			
	2080	2085	2090	
	agg ccg gaa ggt ctg gag aag gag ggg ccc ccc agg aag aag cca ggc			6398
	Arg Pro Glu Gly Leu Glu Lys Glu Gly Pro Pro Arg Lys Lys Pro Gly			
	2095	2100	2105	
	ctt gct tcc ttc cgg ctc tca ggt ctg aag agc tgg gac cga gcg ccg			6446
	Leu Ala Ser Phe Arg Leu Ser Gly Leu Lys Ser Trp Asp Arg Ala Pro			
	2110	2115	2120	2125
	aca ttc cta agg gag ctc tca gat gag act gtg gtc ctg ggc cag tca			6494
	Thr Phe Leu Arg Glu Leu Ser Asp Glu Thr Val Val Leu Gly Gln Ser			
	2130	2135	2140	
	gtg aca ctg gcc tgc cag gtg tca gcc cag cca gct gcc cag gcc acc			6542
	Val Thr Leu Ala Cys Gln Val Ser Ala Gln Pro Ala Ala Gln Ala Thr			
	2145	2150	2155	
	tgg agc aaa gac gga gcc ccc ctg gag agc agc agc cgt gtc ctc atc			6590
	Trp Ser Lys Asp Gly Ala Pro Leu Glu Ser Ser Ser Arg Val Leu Ile			
	2160	2165	2170	
	tct gcc acc ctc aag aac ttc cag ctt ctg acc atc ctg gtg gtg gtg			6638
	Ser Ala Thr Leu Lys Asn Phe Gln Leu Leu Thr Ile Leu Val Val Val			
	2175	2180	2185	
	gct gag gac ctg ggt gtg tac acc tgc agc gtg agc aat gcg ctg ggc			6686
	Ala Glu Asp Leu Gly Val Tyr Thr Cys Ser Val Ser Asn Ala Leu Gly			
	2190	2195	2200	2205
	aca gtg acc acc acg ggc gtc ctc cgg aag gca gag cgc ccc tca tct			6734
	Thr Val Thr Thr Thr Gly Val Leu Arg Lys Ala Glu Arg Pro Ser Ser			
	2210	2215	2220	
	tcg cca tgc ccg gat atc ggg gag gtg tac gcg gat ggg gtg ctg ctg			6782
	Ser Pro Cys Pro Asp Ile Gly Glu Val Tyr Ala Asp Gly Val Leu Leu			
	2225	2230	2235	
	gtc tgg aag ccc gtg gaa tcc tac ggc cct gtg acc tac att gtg cag			6830
	Val Trp Lys Pro Val Glu Ser Tyr Gly Pro Val Thr Tyr Ile Val Gln			
	2240	2245	2250	
	tgc agc cta gaa ggc ggc agc tgg acc aca ctg gcc tcc gac atc ttt			6878
	Cys Ser Leu Glu Gly Gly Ser Trp Thr Thr Leu Ala Ser Asp Ile Phe			
	2255	2260	2265	
	gac tgc tgc tac ctg acc agc aag ctc tcc cgg ggt ggc acc tac acc			6926
	Asp Cys Cys Tyr Leu Thr Ser Lys Leu Ser Arg Gly Gly Thr Tyr Thr			
	2270	2275	2280	2285
	ttc cgc acg gca tgt gtc agc aag gca gga atg ggt ccc tac agc agc			6974
	Phe Arg Thr Ala Cys Val Ser Lys Ala Gly Met Gly Pro Tyr Ser Ser			
	2290	2295	2300	

ccc tcg gag caa gtc ctc ctg gga ggg ccc agc cac ctg gcc tct gag	7022
Pro Ser Glu Gln Val Leu Leu Gly Gly Pro Ser His Leu Ala Ser Glu	
2305 2310 2315	
gag gag agc cag ggg cgg tca gcc caa ccc ctg ccc agc aca aag acc	7070
Glu Glu Ser Gln Gly Arg Ser Ala Gln Pro Leu Pro Ser Thr Lys Thr	
2320 2325 2330	
ttc gca ttc cag aca cag atc cag agg ggc cgc ttc agc gtg gtg cgg	7118
Phe Ala Phe Gln Thr Gln Ile Gln Arg Gly Arg Phe Ser Val Val Arg	
2335 2340 2345	
caa tgc tgg gag aag gcc agc ggg cgg gcg ctg gcc gcc aag atc atc	7166
Gln Cys Trp Glu Lys Ala Ser Gly Arg Ala Leu Ala Ala Lys Ile Ile	
2350 2355 2360 2365	
ccc tac cac ccc aag gac aag aca gca gtg ctg cgc gaa tac gag gcc	7214
Pro Tyr His Pro Lys Asp Lys Thr Ala Val Leu Arg Glu Tyr Glu Ala	
2370 2375 2380	
ctc aag ggc ctg cgc cac ccg cac ctg gcc cag ctg cac gca gcc tac	7262
Leu Lys Gly Leu Arg His Pro His Leu Ala Gln Leu His Ala Ala Tyr	
2385 2390 2395	
ctc agc ccc cgg cac ctg gtg ctc atc ttg gag ctg tgc tct ggg ccc	7310
Leu Ser Pro Arg His Leu Val Leu Ile Leu Glu Leu Cys Ser Gly Pro	
2400 2405 2410	
gag ctg ctc ccc tgc ctg gcc gag agg gcc tcc tac tca gaa tcc gag	7358
Glu Leu Leu Pro Cys Leu Ala Glu Arg Ala Ser Tyr Ser Glu Ser Glu	
2415 2420 2425	
gtg aag gac tac ctg tgg cag atg ttg agt gcc acc cag tac ctg cac	7406
Val Lys Asp Tyr Leu Trp Gln Met Leu Ser Ala Thr Gln Tyr Leu His	
2430 2435 2440 2445	
aac cag cac atc ctg cac ctg gac ctg agg tcc gag aac atg atc atc	7454
Asn Gln His Ile Leu His Leu Asp Leu Arg Ser Glu Asn Met Ile Ile	
2450 2455 2460	
acc gaa tac aac ctg ctc aag gtc gtg gac ctg ggc aat gca cag agc	7502
Thr Glu Tyr Asn Leu Leu Lys Val Val Asp Leu Gly Asn Ala Gln Ser	
2465 2470 2475	
ctc agc cag gag aag gtg ctg ccc tca gac aag ttc aag gac tac cta	7550
Leu Ser Gln Glu Lys Val Leu Pro Ser Asp Lys Phe Lys Asp Tyr Leu	
2480 2485 2490	
gag acc atg gct cca gag ctc ctg gag ggc cag ggg gct gtt cca cag	7598
Glu Thr Met Ala Pro Glu Leu Leu Glu Gly Gln Gly Ala Val Pro Gln	
2495 2500 2505	
aca gac atc tgg gcc atc ggt gtg aca gcc ttc atc atg ctg agc gcc	7646
Thr Asp Ile Trp Ala Ile Gly Val Thr Ala Phe Ile Met Leu Ser Ala	
2510 2515 2520 2525	
gag tac ccg gtg agc agc gag ggt gca cgc gac ctg cag aga gga ctg	7694
Glu Tyr Pro Val Ser Ser Glu Gly Ala Arg Asp Leu Gln Arg Gly Leu	
2530 2535 2540	

cgc aag ggg ctg gtc cgg ctg agc cgc tgc tac gcg ggg ctg tcc ggg	7742
Arg Lys Gly Leu Val Arg Leu Ser Arg Cys Tyr Ala Gly Leu Ser Gly	
2545 2550 2555	
ggc gcc gtg gcc ttc ctg cgc agc act ctg tgc gcc cag ccc tgg ggc	7790
Gly Ala Val Ala Phe Leu Arg Ser Thr Leu Cys Ala Gln Pro Trp Gly	
2560 2565 2570	
cgg ccc tgc gcg tcc agc tgc ctg cag tgc ccg tgg cta aca gag gag	7838
Arg Pro Cys Ala Ser Ser Cys Leu Gln Cys Pro Trp Leu Thr Glu Glu	
2575 2580 2585	
ggc ccg gcc tgt tgc cgg ccc gcg ccc gtg acc ttc cct acc gcg cgg	7886
Gly Pro Ala Cys Ser Arg Pro Ala Pro Val Thr Phe Pro Thr Ala Arg	
2590 2595 2600 2605	
ctg cgc gtc ttc gtg cgc aat cgc gag aag aga cgc gcg ctg ctg tac	7934
Leu Arg Val Phe Val Arg Asn Arg Glu Lys Arg Arg Ala Leu Leu Tyr	
2610 2615 2620	
aag agg cac aac ctg gcc cag gtg cgc tga gggctgcggcc ggccacaccc	7984
Lys Arg His Asn Leu Ala Gln Val Arg *	
2625 2630	
ttgggtctccc cgctgggggt cgctgcagac gcgccaataa aaacgcccag ccggggcgaga	8044
aaaaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaag gcggccgcta aaaaagtcta	8104
ga	8106

<210> 2  
 <211> 2630  
 <212> PRT  
 <213> Homo sapiens

<400> 2

Met Gly Ala Ala Tyr Ser Ser Ala Arg Leu Leu Val Arg Gly Pro Asp	
1 5 10 15	
Glu Pro Glu Glu Lys Pro Ala Ser Asp Val His Glu Gln Leu Val Pro	
20 25 30	
Pro Arg Met Leu Glu Arg Phe Thr Pro Lys Lys Val Lys Lys Gly Ser	
35 40 45	
Ser Ile Thr Phe Ser Val Lys Val Glu Gly Arg Pro Val Pro Thr Val	
50 55 60	
His Trp Leu Arg Glu Glu Ala Glu Arg Gly Val Leu Trp Ile Gly Pro	
65 70 75 80	
Asp Thr Pro Gly Tyr Thr Val Ala Ser Ser Ala Gln Gln His Ser Leu	
85 90 95	
Val Leu Leu Asp Val Gly Arg Gln His Gln Gly Thr Tyr Thr Cys Ile	
100 105 110	
Ala Ser Asn Ala Ala Gly Gln Ala Leu Cys Ser Ala Ser Leu His Val	
115 120 125	
Ser Gly Leu Pro Lys Val Glu Glu Gln Glu Lys Val Lys Glu Ala Leu	
130 135 140	
Ile Ser Thr Phe Leu Gln Gly Thr Thr Gln Ala Ile Ser Ala Gln Gly	
145 150 155 160	
Leu Glu Thr Ala Ser Phe Ala Asp Leu Gly Gly Gln Arg Lys Glu Glu	
165 170 175	
Pro Leu Ala Ala Lys Glu Ala Leu Gly His Leu Ser Leu Ala Glu Val	
180 185 190	
Gly Thr Glu Glu Phe Leu Gln Lys Leu Thr Ser Gln Ile Thr Glu Met	
195 200 205	
Val Ser Ala Lys Ile Thr Gln Ala Lys Leu Gln Val Pro Gly Gly Asp	

210	215	220
Ser Asp Glu Asp Ser Lys Thr Pro Ser Ala Ser Pro Arg His Gly Arg		
225	230	235
Ser Arg Pro Ser Ser Ser Ile Gln Glu Ser Ser Ser Glu Ser Glu Asp		240
	245	250
Gly Asp Ala Arg Gly Glu Ile Phe Asp Ile Tyr Val Val Thr Ala Asp		255
	260	265
Tyr Leu Pro Leu Gly Ala Glu Gln Asp Ala Ile Thr Leu Arg Glu Gly		270
	275	280
Gln Tyr Val Glu Val Leu Asp Ala Ala His Pro Leu Arg Trp Leu Val		285
	290	295
Arg Thr Lys Pro Thr Lys Ser Ser Pro Ser Arg Gln Gly Trp Val Ser		300
305	310	315
Pro Ala Tyr Leu Asp Arg Arg Leu Lys Leu Ser Pro Glu Trp Gly Ala		320
	325	330
Ala Glu Ala Pro Glu Phe Pro Gly Glu Ala Val Ser Glu Asp Glu Tyr		335
	340	345
Lys Ala Arg Leu Ser Ser Val Ile Gln Glu Leu Leu Ser Ser Glu Gln		350
	355	360
Ala Phe Val Glu Glu Leu Gln Phe Leu Gln Ser His His Leu Gln His		365
	370	375
Leu Glu Arg Cys Pro His Val Pro Ile Ala Val Ala Gly Gln Lys Ala		380
385	390	395
Val Ile Phe Arg Asn Val Arg Asp Ile Gly Arg Phe His Ser Ser Phe		400
	405	410
Leu Gln Glu Leu Gln Gln Cys Asp Thr Asp Asp Asp Val Ala Met Cys		415
	420	425
Phe Ile Lys Asn Gln Ala Ala Phe Glu Gln Tyr Leu Glu Phe Leu Val		430
	435	440
Gly Arg Val Gln Ala Glu Ser Val Val Val Ser Thr Ala Ile Gln Glu		445
	450	455
Phe Tyr Lys Lys Tyr Ala Glu Glu Ala Leu Leu Ala Gly Asp Pro Ser		460
465	470	475
Gln Pro Pro Pro Pro Pro Leu Gln His Tyr Leu Glu Gln Pro Val Glu		480
	485	490
Arg Val Gln Arg Tyr Gln Ala Leu Leu Lys Glu Leu Ile Arg Asn Lys		495
	500	505
Ala Arg Asn Arg Gln Asn Cys Ala Leu Leu Glu Gln Ala Tyr Ala Val		510
	515	520
Val Ser Ala Leu Pro Gln Arg Ala Glu Asn Lys Leu His Val Ser Leu		525
	530	535
Met Glu Asn Tyr Pro Gly Thr Leu Glu Ala Leu Gly Glu Pro Ile Arg		540
545	550	555
Gln Gly His Phe Ile Val Trp Glu Gly Ala Pro Gly Ala Arg Met Pro		560
	565	570
Trp Lys Gly His Asn Arg His Val Phe Leu Phe Arg Asn His Leu Val		575
	580	585
Ile Cys Lys Pro Arg Arg Asp Ser Arg Thr Asp Thr Val Ser Tyr Val		590
	595	600
Phe Arg Asn Met Met Lys Leu Ser Ser Ile Asp Leu Asn Asp Gln Val		605
	610	615
Glu Gly Asp Asp Arg Ala Phe Glu Val Trp Gln Glu Arg Glu Asp Ser		620
625	630	635
Val Arg Lys Tyr Leu Leu Gln Ala Arg Thr Ala Ile Ile Lys Ser Ser		640
	645	650
Trp Val Lys Glu Ile Cys Gly Ile Gln Gln Arg Leu Ala Leu Pro Val		655
	660	665
Trp Arg Pro Asp Phe Glu Glu Leu Ala Asp Cys Thr Ala Glu		670
	675	680
Leu Gly Glu Thr Val Lys Leu Ala Cys Arg Val Thr Gly Thr Pro Lys		685
	690	695
		700

Pro	Val	Ile	Ser	Trp	Tyr	Lys	Asp	Gly	Lys	Ala	Val	Gln	Val	Asp	Pro	
705					710					715					720	
His	His	Ile	Leu	Ile	Glu	Asp	Pro	Asp	Gly	Ser	Cys	Ala	Leu	Ile	Leu	
				725					730						735	
Asp	Ser	Leu	Thr	Gly	Val	Asp	Ser	Gly	Gln	Tyr	Met	Cys	Phe	Ala	Ala	
			740					745							750	
Ser	Ala	Ala	Gly	Asn	Cys	Ser	Thr	Leu	Gly	Lys	Ile	Leu	Val	Gln	Val	
		755					760					765				
Pro	Pro	Arg	Phe	Val	Asn	Lys	Val	Arg	Ala	Ser	Pro	Phe	Val	Glu	Gly	
		770				775					780					
Glu	Asp	Ala	Gln	Phe	Thr	Cys	Thr	Ile	Glu	Gly	Ala	Pro	Tyr	Pro	Gln	
785					790					795					800	
Ile	Arg	Trp	Tyr	Lys	Asp	Gly	Ala	Leu	Leu	Thr	Thr	Gly	Asn	Lys	Phe	
			805						810						815	
Gln	Thr	Leu	Ser	Glu	Pro	Arg	Ser	Gly	Leu	Leu	Val	Leu	Val	Ile	Arg	
			820					825							830	
Ala	Ala	Ser	Lys	Glu	Asp	Leu	Gly	Leu	Tyr	Glu	Cys	Glu	Leu	Val	Asn	
		835					840					845				
Arg	Leu	Gly	Ser	Ala	Arg	Ala	Ser	Ala	Glu	Leu	Arg	Ile	Gln	Ser	Pro	
		850				855					860					
Met	Leu	Gln	Ala	Gln	Glu	Gln	Cys	His	Arg	Glu	Gln	Leu	Val	Ala	Ala	
865					870					875					880	
Val	Glu	Asp	Thr	Thr	Leu	Glu	Arg	Ala	Asp	Gln	Glu	Val	Thr	Ser	Val	
			885						890						895	
Leu	Lys	Arg	Leu	Leu	Gly	Pro	Lys	Ala	Pro	Gly	Pro	Ser	Thr	Gly	Asp	
			900					905						910		
Leu	Thr	Gly	Pro	Gly	Pro	Cys	Pro	Arg	Gly	Ala	Pro	Ala	Leu	Gln	Glu	
		915					920					925				
Thr	Gly	Ser	Gln	Pro	Pro	Val	Thr	Gly	Thr	Ser	Glu	Ala	Pro	Ala	Val	
		930				935					940					
Pro	Pro	Arg	Val	Pro	Gln	Pro	Leu	Leu	His	Glu	Gly	Pro	Glu	Gln	Glu	
945					950					955					960	
Pro	Glu	Ala	Ile	Ala	Arg	Ala	Gln	Glu	Trp	Thr	Val	Pro	Ile	Arg	Met	
			965						970						975	
Glu	Gly	Ala	Ala	Trp	Pro	Gly	Ala	Gly	Thr	Gly	Glu	Leu	Leu	Trp	Asp	
			980					985					990			
Val	His	Ser	His	Val	Val	Arg	Glu	Thr	Thr	Gln	Arg	Thr	Tyr	Thr	Tyr	
		995					1000					1005				
Gln	Ala	Ile	Asp	Thr	His	Thr	Ala	Arg	Pro	Pro	Ser	Met	Gln	Val	Thr	
		1010				1015					1020					
Ile	Glu	Asp	Val	Gln	Ala	Gln	Thr	Gly	Gly	Thr	Ala	Gln	Phe	Glu	Ala	
1025					1030					1035					1040	
Ile	Ile	Glu	Gly	Asp	Pro	Gln	Pro	Ser	Val	Thr	Trp	Tyr	Lys	Asp	Ser	
			1045						1050					1055		
Val	Gln	Leu	Val	Asp	Ser	Thr	Arg	Leu	Ser	Gln	Gln	Gln	Glu	Gly	Thr	
			1060					1065						1070		
Thr	Tyr	Ser	Leu	Val	Leu	Arg	His	Val	Ala	Ser	Lys	Asp	Ala	Gly	Val	
		1075					1080					1085				
Tyr	Thr	Cys	Leu	Ala	Gln	Asn	Thr	Gly	Gly	Gln	Val	Leu	Cys	Lys	Ala	
		1090				1095					1100					
Glu	Leu	Leu	Val	Leu	Gly	Gly	Asp	Asn	Glu	Pro	Asp	Ser	Glu	Lys	Gln	
1105					1110					1115					1120	
Ser	His	Arg	Arg	Lys	Leu	His	Ser	Phe	Tyr	Glu	Val	Lys	Glu	Glu	Ile	
			1125						1130						1135	
Gly	Arg	Gly	Val	Phe	Gly	Phe	Val	Lys	Arg	Val	Gln	His	Lys	Gly	Asn	
			1140					1145					1150			
Lys	Ile	Leu	Cys	Ala	Ala	Lys	Phe	Ile	Pro	Leu	Arg	Ser	Arg	Thr	Arg	
		1155					1160					1165				
Ala	Gln	Ala	Tyr	Arg	Glu	Arg	Asp	Ile	Leu	Ala	Ala	Leu	Ser	His	Pro	
		1170				1175					1180					
Leu	Val	Thr	Gly	Leu	Leu	Asp	Gln	Phe	Glu	Thr	Arg	Lys	Thr	Leu	Ile	

1185	1190	1195	1200
Leu Ile Leu Glu	Leu Cys Ser Ser Glu Glu	Leu Leu Asp Arg	Leu Tyr
1205	1210	1215	
Arg Lys Gly Val Val Thr	Glu Ala Glu Val Lys Val Tyr	Ile Gln Gln	
1220	1225	1230	
Leu Val Glu Gly Leu His Tyr	Leu His Ser His Gly Val	Leu His Leu	
1235	1240	1245	
Asp Ile Lys Pro Ser Asn Ile	Leu Met Val His Pro Ala Arg	Glu Asp	
1250	1255	1260	
Ile Lys Ile Cys Asp Phe Gly	Phe Ala Gln Asn Ile Thr Pro	Ala Glu	
1265	1270	1275	1280
Leu Gln Phe Ser Gln Tyr Gly	Ser Pro Glu Phe Val Ser Pro	Glu Ile	
1285	1290	1295	
Ile Gln Gln Asn Pro Val Ser	Glu Ala Ser Asp Ile Trp Ala Met	Gly	
1300	1305	1310	
Val Ile Ser Tyr Leu Ser Leu	Thr Cys Ser Ser Pro Phe Ala Gly	Glu	
1315	1320	1325	
Ser Asp Arg Ala Thr Leu Leu	Asn Val Leu Glu Gly Arg Val	Ser Trp	
1330	1335	1340	
Ser Ser Pro Met Ala Ala His	Leu Ser Glu Asp Ala Lys Asp	Phe Ile	
1345	1350	1355	1360
Lys Ala Thr Leu Gln Arg Ala	Pro Gln Ala Arg Pro Ser Ala Ala	Gln	
1365	1370	1375	
Cys Leu Ser His Pro Trp Phe	Leu Lys Ser Met Pro Ala Glu	Glu Ala	
1380	1385	1390	
His Phe Ile Asn Thr Lys Gln	Leu Lys Phe Leu Leu Ala Arg	Ser Arg	
1395	1400	1405	
Trp Gln Arg Ser Leu Met Ser	Tyr Lys Ser Ile Leu Val Met	Arg Ser	
1410	1415	1420	
Ile Pro Glu Leu Leu Arg Gly	Pro Pro Asp Ser Pro Ser Leu	Gly Val	
1425	1430	1435	1440
Ala Arg His Leu Cys Arg Asp	Thr Gly Gly Ser Ser Ser Ser	Ser Ser	
1445	1450	1455	
Ser Ser Asp Asn Glu Leu Ala	Pro Phe Ala Arg Ala Lys Ser	Leu Pro	
1460	1465	1470	
Pro Ser Pro Val Thr His Ser	Pro Leu Leu His Pro Arg Gly	Phe Leu	
1475	1480	1485	
Arg Pro Ser Ala Ser Leu Pro	Glu Glu Ala Glu Ala Ser Glu	Arg Ser	
1490	1495	1500	
Thr Glu Ala Pro Ala Pro Pro	Ala Ser Pro Glu Gly Ala Gly	Pro Pro	
1505	1510	1515	1520
Ala Ala Gln Gly Cys Val Pro	Arg His Ser Val Ile Arg Ser	Leu Phe	
1525	1530	1535	
Tyr His Gln Ala Gly Glu Ser	Pro Glu His Gly Ala Leu Ala	Pro Gly	
1540	1545	1550	
Ser Arg Arg His Pro Ala Arg	Arg Arg His Leu Leu Lys Gly	Gly Tyr	
1555	1560	1565	
Ile Ala Gly Ala Leu Pro Gly	Leu Arg Glu Pro Leu Met Glu	His Arg	
1570	1575	1580	
Val Leu Glu Glu Glu Ala Ala	Arg Glu Glu Gln Ala Thr Leu	Leu Ala	
1585	1590	1595	1600
Lys Ala Pro Ser Phe Glu Thr	Ala Leu Arg Leu Pro Ala Ser	Gly Thr	
1605	1610	1615	
His Leu Ala Pro Gly His Ser	His Ser Leu Glu His Asp Ser	Pro Ser	
1620	1625	1630	
Thr Pro Arg Pro Ser Ser Glu	Ala Cys Gly Glu Ala Gln Arg	Leu Pro	
1635	1640	1645	
Ser Ala Pro Ser Gly Gly Ala	Pro Ile Arg Asp Met Gly His	Pro Gln	
1650	1655	1660	
Gly Ser Lys Gln Leu Pro Ser	Thr Gly Gly His Pro Gly Thr	Ala Gln	
1665	1670	1675	1680

Pro Glu Arg Pro Ser Pro Asp Ser Pro Trp Gly Gln Pro Ala Pro Phe  
 1685 1690 1695  
 Cys His Pro Lys Gln Gly Ser Ala Pro Gln Glu Gly Cys Ser Pro His  
 1700 1705 1710  
 Pro Ala Val Ala Pro Cys Pro Pro Gly Ser Phe Pro Pro Gly Ser Cys  
 1715 1720 1725  
 Lys Glu Ala Pro Leu Val Pro Ser Ser Pro Phe Leu Gly Gln Pro Gln  
 1730 1735 1740  
 Ala Pro Pro Ala Pro Ala Lys Ala Ser Pro Pro Leu Asp Ser Lys Met  
 1745 1750 1755 1760  
 Gly Pro Gly Asp Ile Ser Leu Pro Gly Arg Pro Lys Pro Gly Pro Cys  
 1765 1770 1775  
 Ser Ser Pro Gly Ser Ala Ser Gln Ala Ser Ser Ser Gln Val Ser Ser  
 1780 1785 1790  
 Leu Arg Val Gly Ser Ser Gln Val Gly Thr Glu Pro Gly Pro Ser Leu  
 1795 1800 1805  
 Asp Ala Glu Gly Trp Thr Gln Glu Ala Glu Asp Leu Ser Asp Ser Thr  
 1810 1815 1820  
 Pro Thr Leu Gln Arg Pro Gln Glu Gln Ala Thr Met Arg Lys Phe Ser  
 1825 1830 1835 1840  
 Leu Gly Gly Arg Gly Gly Tyr Ala Gly Val Ala Gly Tyr Gly Thr Phe  
 1845 1850 1855  
 Ala Phe Gly Gly Asp Ala Gly Gly Met Leu Gly Gln Gly Pro Met Trp  
 1860 1865 1870  
 Ala Arg Ile Ala Trp Ala Val Ser Gln Ser Glu Glu Glu Gln Glu  
 1875 1880 1885  
 Glu Ala Arg Ala Glu Ser Gln Ser Glu Glu Gln Gln Glu Ala Arg Ala  
 1890 1895 1900  
 Glu Ser Pro Leu Pro Gln Val Ser Ala Arg Pro Val Pro Glu Val Gly  
 1905 1910 1915 1920  
 Arg Ala Pro Thr Arg Ser Ser Pro Glu Pro Thr Pro Trp Glu Asp Ile  
 1925 1930 1935  
 Gly Gln Val Ser Leu Val Gln Ile Arg Asp Leu Ser Gly Asp Ala Glu  
 1940 1945 1950  
 Ala Ala Asp Thr Ile Ser Leu Asp Ile Ser Glu Val Asp Pro Ala Tyr  
 1955 1960 1965  
 Leu Asn Leu Ser Asp Leu Tyr Asp Ile Lys Tyr Leu Pro Phe Glu Phe  
 1970 1975 1980  
 Met Ile Phe Arg Lys Val Pro Lys Ser Ala Gln Pro Glu Pro Pro Ser  
 1985 1990 1995 2000  
 Pro Met Ala Glu Glu Leu Ala Glu Phe Pro Glu Pro Thr Trp Pro  
 2005 2010 2015  
 Trp Pro Gly Glu Leu Gly Pro His Ala Gly Leu Glu Ile Thr Glu Glu  
 2020 2025 2030  
 Ser Glu Asp Val Asp Ala Leu Leu Ala Glu Ala Ala Val Gly Arg Lys  
 2035 2040 2045  
 Arg Lys Trp Ser Ser Pro Ser Arg Ser Leu Phe His Phe Pro Gly Arg  
 2050 2055 2060  
 His Leu Pro Leu Asp Glu Pro Ala Glu Leu Gly Leu Arg Glu Arg Val  
 2065 2070 2075 2080  
 Lys Ala Ser Val Glu His Ile Ser Arg Ile Leu Lys Gly Arg Pro Glu  
 2085 2090 2095  
 Gly Leu Glu Lys Glu Gly Pro Pro Arg Lys Lys Pro Gly Leu Ala Ser  
 2100 2105 2110  
 Phe Arg Leu Ser Gly Leu Lys Ser Trp Asp Arg Ala Pro Thr Phe Leu  
 2115 2120 2125  
 Arg Glu Leu Ser Asp Glu Thr Val Val Leu Gly Gln Ser Val Thr Leu  
 2130 2135 2140  
 Ala Cys Gln Val Ser Ala Gln Pro Ala Ala Gln Ala Thr Trp Ser Lys  
 2145 2150 2155 2160  
 Asp Gly Ala Pro Leu Glu Ser Ser Ser Arg Val Leu Ile Ser Ala Thr



				2165					2170					2175	
Leu	Lys	Asn	Phe	Gln	Leu	Leu	Thr	Ile	Leu	Val	Val	Val	Ala	Glu	Asp
			2180					2185					2190		
Leu	Gly	Val	Tyr	Thr	Cys	Ser	Val	Ser	Asn	Ala	Leu	Gly	Thr	Val	Thr
		2195					2200					2205			
Thr	Thr	Gly	Val	Leu	Arg	Lys	Ala	Glu	Arg	Pro	Ser	Ser	Ser	Pro	Cys
	2210					2215					2220				
Pro	Asp	Ile	Gly	Glu	Val	Tyr	Ala	Asp	Gly	Val	Leu	Leu	Val	Trp	Lys
2225				2230						2235				2240	
Pro	Val	Glu	Ser	Tyr	Gly	Pro	Val	Thr	Tyr	Ile	Val	Gln	Cys	Ser	Leu
			2245					2250					2255		
Glu	Gly	Gly	Ser	Trp	Thr	Thr	Leu	Ala	Ser	Asp	Ile	Phe	Asp	Cys	Cys
		2260						2265					2270		
Tyr	Leu	Thr	Ser	Lys	Leu	Ser	Arg	Gly	Gly	Thr	Tyr	Thr	Phe	Arg	Thr
	2275						2280						2285		
Ala	Cys	Val	Ser	Lys	Ala	Gly	Met	Gly	Pro	Tyr	Ser	Ser	Pro	Ser	Glu
	2290					2295					2300				
Gln	Val	Leu	Leu	Gly	Gly	Pro	Ser	His	Leu	Ala	Ser	Glu	Glu	Glu	Ser
2305				2310						2315					2320
Gln	Gly	Arg	Ser	Ala	Gln	Pro	Leu	Pro	Ser	Thr	Lys	Thr	Phe	Ala	Phe
			2325					2330					2335		
Gln	Thr	Gln	Ile	Gln	Arg	Gly	Arg	Phe	Ser	Val	Val	Arg	Gln	Cys	Trp
		2340						2345					2350		
Glu	Lys	Ala	Ser	Gly	Arg	Ala	Leu	Ala	Ala	Lys	Ile	Ile	Pro	Tyr	His
	2355						2360						2365		
Pro	Lys	Asp	Lys	Thr	Ala	Val	Leu	Arg	Glu	Tyr	Glu	Ala	Leu	Lys	Gly
	2370					2375					2380				
Leu	Arg	His	Pro	His	Leu	Ala	Gln	Leu	His	Ala	Ala	Tyr	Leu	Ser	Pro
2385					2390					2395					2400
Arg	His	Leu	Val	Leu	Ile	Leu	Glu	Leu	Cys	Ser	Gly	Pro	Glu	Leu	Leu
		2405						2410					2415		
Pro	Cys	Leu	Ala	Glu	Arg	Ala	Ser	Tyr	Ser	Glu	Ser	Glu	Val	Lys	Asp
		2420						2425					2430		
Tyr	Leu	Trp	Gln	Met	Leu	Ser	Ala	Thr	Gln	Tyr	Leu	His	Asn	Gln	His
	2435						2440						2445		
Ile	Leu	His	Leu	Asp	Leu	Arg	Ser	Glu	Asn	Met	Ile	Ile	Thr	Glu	Tyr
	2450				2455					2460					
Asn	Leu	Leu	Lys	Val	Val	Asp	Leu	Gly	Asn	Ala	Gln	Ser	Leu	Ser	Gln
2465				2470				2475							2480
Glu	Lys	Val	Leu	Pro	Ser	Asp	Lys	Phe	Lys	Asp	Tyr	Leu	Glu	Thr	Met
		2485						2490					2495		
Ala	Pro	Glu	Leu	Leu	Glu	Gly	Gln	Gly	Ala	Val	Pro	Gln	Thr	Asp	Ile
	2500							2505					2510		
Trp	Ala	Ile	Gly	Val	Thr	Ala	Phe	Ile	Met	Leu	Ser	Ala	Glu	Tyr	Pro
	2515					2520						2525			
Val	Ser	Ser	Glu	Gly	Ala	Arg	Asp	Leu	Gln	Arg	Gly	Leu	Arg	Lys	Gly
	2530					2535					2540				
Leu	Val	Arg	Leu	Ser	Arg	Cys	Tyr	Ala	Gly	Leu	Ser	Gly	Gly	Ala	Val
2545				2550					2555						2560
Ala	Phe	Leu	Arg	Ser	Thr	Leu	Cys	Ala	Gln	Pro	Trp	Gly	Arg	Pro	Cys
		2565						2570					2575		
Ala	Ser	Ser	Cys	Leu	Gln	Cys	Pro	Trp	Leu	Thr	Glu	Glu	Gly	Pro	Ala
		2580						2585					2590		
Cys	Ser	Arg	Pro	Ala	Pro	Val	Thr	Phe	Pro	Thr	Ala	Arg	Leu	Arg	Val
	2595					2600						2605			
Phe	Val	Arg	Asn	Arg	Glu	Lys	Arg	Arg	Ala	Leu	Leu	Tyr	Lys	Arg	His
	2610				2615						2620				
Asn	Leu	Ala	Gln	Val	Arg										
2625					2630										

<210> 3  
 <211> 7893  
 <212> DNA  
 <213> Homo sapiens

<400> 3

atgggtgctg	cctactcgtc	tgcccggctg	ctggttcgag	gccctgatga	gccagaagag	60
aagcctgcat	cagatgtgca	tgagcagctg	gtgccgcccc	gaatgctgga	gaggttcacc	120
ccaagaaag	tgaagaaagg	ctccagcatc	accttctctg	tgaaggtaga	aggacgcccc	180
gtgcccaccg	tgcactggct	cagggaggag	gctgagagag	gcgtgctgtg	gattggccct	240
gacacaccgg	gctacaccgt	ggccagctct	gcgcagcagc	acagcctggt	cctgctggac	300
gtgggcccgg	agcaccagg	cacctacaca	tgcattgcca	gcaacgctgc	cggccaggcc	360
ctctgctccg	ccagcctgca	cgtctcgggc	ctgcctaagg	tggaggagca	ggagaaagt	420
aaggaagcgc	tgatttccac	tttctctgag	gggaccacac	aagccatctc	agcacagggg	480
ttggaactg	cgagttttgc	tgaccttggt	gggcagagga	aagaagagcc	tctggctgcc	540
aaggaggccc	tcgccacact	gtccctcgct	gaggtgggca	cagaggagtt	cctgcagaaa	600
ctgacctccc	agatcactga	gatggtatcg	gccaagatca	cgcaggccaa	gctgcagggt	660
cccgagggtg	acagtgatga	ggactccaag	acaccatctg	catccccccg	ccatggccga	720
tcacggccat	cctccagcat	ccaggagtct	tcctcagagt	cagaggacgg	cgatgcccga	780
ggcgagatct	ttgacatcta	cgtggtcacc	gctgactacc	tgcccctagg	ggctgagcag	840
gatgccatca	cgctgcggga	aggccagtat	gtggagggtc	tggatgcagc	ccaccactg	900
cgctggcttg	tccgcaccaa	gcccaccaag	tccagcccc	cacggcagg	ctgggtgtca	960
ccagcctacc	tggacaggag	gctcaagctg	tcacctgagt	ggggggccgc	tgaggccct	1020
gagttccctg	gggaggctgt	gtctgaagac	gaatacaagg	caaggctgag	ctctgtgatc	1080
caggagctgc	tgagttctga	gcaggccttc	gtggaggagc	tgcagttctc	gcagagccac	1140
cacctgcagc	acctggagcg	ctgccccac	gtgcccatag	ccgtggcccg	ccagaaggca	1200
gtcatcttcc	gcaatgtgcg	ggacatcggc	cgcttccaca	gcagcttctc	gcaggagttg	1260
cagcagtgcg	acacggacga	cgacgtggcc	atgtgcttca	tcaagaacca	ggcgcccttt	1320
gagcagtacc	tggagttcct	ggtggggcgt	gtgcaggctg	agtcgggtgt	cgtcagcacg	1380
gccatccagg	agttctacaa	gaaatacgcg	gaggaggccc	tgttggcagg	ggacccctct	1440
cagccccgc	caccacctct	gcagcactac	ctggagcagc	cagtggagcg	ggtgcagcgc	1500
taccaggcct	tgetgaagga	gttgatccgc	aacaaggcgc	ggaacagaca	gaactgcgcg	1560
ctgtggagc	aggcctatgc	cgtggtgtct	gccctgccac	agcgcgctga	gaacaagctg	1620
cacgtgtccc	tcatggagaa	ctaccacagg	acctggagg	ccctgggcga	gcccacccgc	1680
cagggccact	tcatcgtgtg	ggagggtgca	ccgggggccc	gcatgccctg	gaagggccac	1740
aaccgtcacg	tgttcctctt	ccgcaaccac	ctggtaatct	gcaagccccg	gcgagactcc	1800
cgcaccgata	ccgtcagcta	cgtgttccgg	aacatgatga	agctgagcag	catcgacctg	1860
aacgaccagg	tggaggggga	tgaccgcgcc	ttcgagggtg	ggcaggagcg	ggaggactcg	1920
gtgcgcaagt	acctgctgca	ggcacggaca	gccattatca	agagctcgtg	ggtgaaggag	1980
atctgtggca	tccagcagcg	tctggccctg	cctgtgtggc	ggcccccgga	ctttgaagag	2040
gagctggccg	actgcacagc	cgagctgggt	gaagacagtca	agctggcctg	ccgcgtgacg	2100
ggcacacca	agcctgtcat	cagctgggtac	aaagatggga	aagcagtgca	ggtggacccc	2160
caccacatcc	tcattgaaga	ccctgatggc	tcgtgtgcac	tcaccttgga	cagcctgacc	2220
ggtgtggact	ctggccagta	catgtgcttc	gcggccagcg	ccgttgga	ctgcagtacc	2280
ctgggcaaga	tcctggtgca	agtcccacca	cggttcgtga	acaaggctccg	ggcctcacc	2340
tttgtggagg	gagaggacgc	ccagttcacc	tgcaccatcg	aaggcgcccc	gtaccgcag	2400
atcaggtggt	acaaggacgg	ggccctgctg	accactggca	acaagttcca	gacactgagt	2460
gagcctcgca	gcggcctgct	agtgtggtg	atccggggcg	ccagcaagga	ggacctgggg	2520
ctctacagat	gtgagctggt	gaaccggctg	ggctccgcgc	gggctagtgc	ggagctgcgc	2580
attcagagcc	ccatgctgca	ggcccaggag	cagtgctaca	gggagcagct	cgtggctgca	2640
gtggaagaca	ccacctgga	gcgagcggac	caggagggtca	catctgtcct	gaagagactg	2700
ctgggccccca	aggcgccagg	cccctccaca	ggggacctca	ctggccctg	cccctgcccc	2760
agggggggcac	ccgactcca	ggaaaccggc	tcccagcccc	cagtcaccgg	aacttcggag	2820
gcacctgccc	tgcccccgag	ggtgccacag	cccctcctcc	acgaaggccc	agagcaggag	2880
ccggaggcca	ttgccagagc	ccaggaatgg	actgtgccc	ttcgatgga	gggtgcagcc	2940
tggccccggg	caggcacagg	ggagctgctc	tgggacgtcc	acagccacgt	ggtcagagag	3000
accacacaga	ggacctacac	ataccaggcc	atcgacacgc	acaccgcacg	gccccatcc	3060
atgcaggtaa	ccatcgagga	tgtgcaggga	cagacaggcg	gaacggccca	attcgaggct	3120
atcatgtagg	gcgacccaca	gccctcggtg	acctgggtaca	aggacagcgt	ccagctgggt	3180
gacagcacc	ggcttagcca	gcagcaagaa	ggcaccacat	actccctggt	gctgaggcat	3240
gtggcctcga	aggatgccgg	cgtttacacc	tgccctggccc	aaaacactgg	tggccagggt	3300

ctctgcaagg	cagagctgct	gggtgcttggg	ggggacaatg	agccgggactc	agagaagcaa	3360
agccaccgga	ggaagctgca	ctcctttctat	gaggtcaagg	aggagattgg	aaggggctg	3420
tttggttcg	taaaaagagt	gcagcacaaa	ggaaacaaga	tctgtgctgc	tgccaagttc	3480
atccccctac	ggagcagaac	tggggcccag	gcatacaggg	agcgagacat	cctggcccg	3540
ctgagccacc	cgctgggtcac	ggggctgctg	gaccagtttg	agaccgcga	gaccctcatc	3600
ctcatcctgg	agctgtgctc	gggtctacatc	ctgctggacc	gcctgtacag	gaaggggctg	3660
gtgacggagg	ccgaggtcaa	gggtctacatc	cagcagctgg	tggaggggct	gcactacctg	3720
cacagccatg	gcgttctcca	cctggacata	aagccctcta	acatcctgat	ggtgcatcct	3780
gcccgggaag	acattaaaat	ctgcgacttt	ggctttgccc	agaacatcac	cccagcagag	3840
ctgcagttca	gccagtacgg	ctcccctgag	ttcgtctccc	ccgagatcat	ccagcagaac	3900
cctgtgagcg	aagcctccga	catttgggcc	atgggtgtca	tctcctacct	cagcctgacc	3960
tgtcatcccc	catttgccgg	cgagagtgc	cggtccaccc	tctgaacgt	cctggagggg	4020
cgcgtgtcat	ggagcagccc	catggctgcc	cacctcagcg	aagacgcaa	agacttcac	4080
aaggctacgc	tgagagagc	ccctcaggcc	cggcctagt	cggcccgag	cctctccac	4140
ccctggttcc	tgaaatccat	gcctgcggag	gagggccact	tcatcaacac	caagcagctc	4200
aagttcctcc	tggcccgaag	tcgctggcag	cggtccctga	tgagctacaa	gtccatcctg	4260
gtgatgcgct	ccatccctga	gctgctgcgg	ggcccacccg	acagcccctc	cctcggcgta	4320
gcccggcacc	tctgcaggga	caactgggtgc	tcctccagtt	cctcctcctc	ctctgacaac	4380
gagctcgcgc	catttgcccg	ggctaagtca	ctgccaccct	ccccgggtgac	acactcacca	4440
ctgctgcacc	cccggggctt	cctgcggccc	tcggccagcc	tgccctgagga	agccgaggcc	4500
agtgcgcgct	ccaccgaggc	cccagctccg	cctgcacatc	ccgaggggtgc	cggggccaccg	4560
gcccggcagg	gctgcgtgcc	ccggcacagc	gtcatccgca	gcctgttcta	ccaccaggcg	4620
ggtgagagcc	ctgagcacgg	ggccctggcc	ccggggagca	ggcggcacc	ggcccggcg	4680
ggcaccttgc	tgaaggcg	gtacattgcg	ggggcgctgc	caggcctgcg	cgagccactg	4740
atggagcacc	gcgtgctgga	ggaggaggg	gagcaggccac	cctcctggcc	4800	
aaagccccct	cattcgagac	tgccctccgg	ctgcctgcct	ctggcaccga	cttggccctc	4860
ggccacagcc	actccctgga	acatgactct	ccgagcacc	ccgcccctc	ctcggaggcc	4920
tgccggtgag	cacagcgact	gccttcagcc	ccctccgggg	ggggccctat	caggggacatg	4980
gggcaccctc	agggctccaa	gcagcttcca	tcactgggtg	gccaccacag	caactgctcag	5040
ccagagaggc	catccccgga	cagcccttgg	gggcagccag	cccctttctg	ccaccccaag	5100
cagggttctg	ccccccagga	gggctgcagc	ccccaccacg	cagttgcccc	atgccctcct	5160
ggctccttcc	ctccaggatc	ttgcaaagag	gcccccttag	tacctcaag	ccccttcttg	5220
ggacagcccc	aggcaccccc	tgccccctgcc	aaagcaagcc	ccccattgga	ctctaagatg	5280
gggcttggag	acatctctct	tcctggggag	ccaaaaccgc	ggccctgcag	ttcccagggg	5340
tcagcctccc	aggcgagctc	ttcccaagtg	agctccctca	gggtgggctc	ctcccagggtg	5400
ggcacagagc	ctggcccttc	cctggatgcg	gagggctgga	cccaggaggc	tgaggatctg	5460
tccgactcca	caccacactt	gcagcggcct	caggaacagg	cgaccatgcg	caagttctcc	5520
ctgggtgggtc	gcgggggcta	cgcaggcgctg	gctggctatg	gcacctttgc	ctttgggtgga	5580
gatgcagggg	gcatgctggg	gcagggggccc	atgtgggcca	ggatagcctg	ggctgtgtcc	5640
cagtcggagg	aggaggagca	ggaggaggcc	agggctgagt	cccagtcgga	ggagcagcag	5700
gagggcaggg	ctgagagccc	actgccccac	gtcagtgcga	ggcctgtgcc	tgaggctcgg	5760
agggctccca	ccagagagctc	tcagagccc	acccatggg	aggacatcgg	gcaggctctcc	5820
ctgggtgcaga	tcggggacct	gtcagggtgat	gcggaggcgg	ccgacacaat	atccctggac	5880
atttccgagg	tggaacccgc	ctacctcaac	ctctcagacc	tgtacgat	caagtacctc	5940
ccattcgagt	ttatgatctt	caggaaagtc	cccaagtccg	ctcagccaga	gccgcccctcc	6000
cccatggctg	aggaggagct	ggccgagttc	ccggagccca	cgtggccctg	gccagggtgaa	6060
ctggggcccc	acgcaggcct	ggagatcaca	gaggagtcag	aggatgtgga	cgcgctgctg	6120
gcagaggctg	ccgtgggcag	gaagcgcaag	tggtcctcgc	cgtcacgcag	cctctccac	6180
ttccctggga	ggcacctgcc	gctggatgag	cctgcagagc	tggggctgcg	tgagagagtg	6240
aaggccctccg	tgagacacat	ctcccggatc	ctgaagggca	ggccggaagg	tctggagaag	6300
gaggggcccc	ccaggaagaa	gccaggcctt	gcttccctcc	ggctctcagg	tctgaagagc	6360
tgggaccgag	cgccgacatt	cctaaggagg	ctctcagatg	agactgtggt	cctggggccag	6420
tcagtgcac	tggcctgcca	ggtgtcagcc	cagccagctg	cccaggccac	ctggagcaaa	6480
gacggagccc	ccctggagag	cagcagccgt	gtcctcatct	ctgccaccct	caagaacttc	6540
cagcttctga	ccatcctggg	ggtggtggct	gaggacctgg	gtgtgtacac	ctgcagcgtg	6600
agcaatgcgc	tggggacagt	gaccaccacg	ggcgtcctcc	ggaaggcaga	gcgcccctca	6660
tcttcgccat	gcccggatat	cggggagggtg	tacgcggatg	gggtgctgct	ggtctggaag	6720
ccgtgggaat	cctacggccc	tgtgacctac	attgtgcagt	gcagcctaga	aggcggcagc	6780
tggaccacac	tggcctccga	catctttgac	tgctgctacc	tgaccagcaa	gctctcccgg	6840
ggtggcacct	acaccttccg	cacggcatgt	ctcagcaagg	caggaatggg	tccttacagc	6900
agccccctcg	agcaagtcct	cctgggaggg	cccagccacc	tggcctctga	ggaggagagc	6960

```

cagggggcgggt cagcccaacc cctgcccagc acaaagacct tcgcattcca gacacagatc 7020
cagagggggcc gcttcagcgt ggtgcggcaa tgctgggaga aggccagcgg gcggggcgctg 7080
gccgccaaga tcatccccta ccacccaag gacaagacag cagtgcctgcg cgaatacgag 7140
gccctcaagg gcctgcgcca cccgcacctg gccagctgc acgcagccta cctcagcccc 7200
cggcacctgg tgctcatctt ggagctgtgc tctgggcccg agctgctccc ctgcctggcc 7260
gagagggcct cctactcaga atccgaggtg aaggactacc tgtggcagat gttgagtgcc 7320
accagtaacc tgcacaacca gcacatcctg cacctggacc tgaggtccga gaacatgatc 7380
atcacogaat acaacctgct caaggtcgtg gacctgggca atgcacagag cctcagccag 7440
gagaaggtgc tgccctcaga caagttcaag gactacctag agaccatggc tccagagctc 7500
ctggaggggcc aggggggctgt tccacagaca gacatctggg ccatcggtgt gacagccttc 7560
atcatgctga gcgccgagta cccggtgagc agcgaggggtg cacgcgacct gcagagagga 7620
ctgcgcaagg ggctgggtccg gctgagccgc tgctacgcgg ggctgtccgg gggcgccgtg 7680
gccttcctgc gcagcactct gtgcgccag cctgggggcc ggccctgcgc gtccagctgc 7740
ctgcagtgcc cgtggctaac agaggagggc ccggcctgtt cgcgggccgc gcccgtagacc 7800
ttccctaccg cgcggtgcg cgtcttcgtg cgcaatcgcg agaagagacg cgcgctgctg 7860
tacaagaggc acaacctggc ccaggtgcgc tga 7893

```

<210> 4  
 <211> 24120  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> 5'UTR  
 <222> (1)...(71)  
 <221> CDS  
 <222> (72)...(23978)  
 <221> 3'UTR  
 <222> (23979)...(24120)

```

<400> 4
tcgctaccag cagcccacac tccggccgct gccagagcc cccatagaga gaggtccccg 60
ccgccaccgt c atg gat cag cca cag ttc agc ggg gcg ccc cgc ttt ctc 110
      Met Asp Gln Pro Gln Phe Ser Gly Ala Pro Arg Phe Leu
              1              5              10

acc cgg ccc aag gcc ttc gtg gtg tgc gtg ggc aag gac gcc acc ctc 158
Thr Arg Pro Lys Ala Phe Val Val Ser Val Gly Lys Asp Ala Thr Leu
      15              20              25

agc tgc cag atc gtg ggt aat ccc acg cca cag gtg agc tgg gag aag 206
Ser Cys Gln Ile Val Gly Asn Pro Thr Pro Gln Val Ser Trp Glu Lys
      30              35              40              45

gac cag cag ccg gtg acg gcc ggc gcg cgc ttc cgt ctg gcc cag gac 254
Asp Gln Gln Pro Val Thr Ala Gly Ala Arg Phe Arg Leu Ala Gln Asp
              50              55              60

ggc gac ctc tac cgc ctc act atc ctg gac ctg gcg ctg ggc gac agt 302
Gly Asp Leu Tyr Arg Leu Thr Ile Leu Asp Leu Ala Leu Gly Asp Ser
              65              70              75

ggg caa tac gtg tgc cgc gcg cgc aat gcc ata ggc gag gcc ttc gct 350
Gly Gln Tyr Val Cys Arg Ala Arg Asn Ala Ile Gly Glu Ala Phe Ala
      80              85              90

gcc gtg ggc ctg cag gtg gac gcg gag gcc gcg tgc gcc gag cag gcg 398
Ala Val Gly Leu Gln Val Asp Ala Glu Ala Ala Cys Ala Glu Gln Ala
      95              100              105

```

ccg cac ttc ctg ctg cgg ccc acg tcc atc cgc gtg cgc gag ggc tca	446
Pro His Phe Leu Leu Arg Pro Thr Ser Ile Arg Val Arg Glu Gly Ser	
110 115 120 125	
gag gcc acc ttc cgc tgc cgc gtg ggt ggc tcc ccg agg ccg gca gtg	494
Glu Ala Thr Phe Arg Cys Arg Val Gly Gly Ser Pro Arg Pro Ala Val	
130 135 140	
agc tgg tcc aag gac ggg cgg cgc ctg ggt gag ccc gac ggc ccc cgc	542
Ser Trp Ser Lys Asp Gly Arg Arg Leu Gly Glu Pro Asp Gly Pro Arg	
145 150 155	
gtg cgc gtg gag gag ctc ggc gag gca agt gcg ctg cgc att cgg gcg	590
Val Arg Val Glu Glu Leu Gly Glu Ala Ser Ala Leu Arg Ile Arg Ala	
160 165 170	
gcg cgg ccg cgc gac ggc ggc act tac gag gtc cgc gcc gag aac ccg	638
Ala Arg Pro Arg Asp Gly Gly Thr Tyr Glu Val Arg Ala Glu Asn Pro	
175 180 185	
ctg ggc gct gcc agc gcc gcc gcg gcg cta gtg gtg gac tcg gac gcc	686
Leu Gly Ala Ala Ser Ala Ala Ala Ala Leu Val Val Asp Ser Asp Ala	
190 195 200 205	
gcg gac acg gcc agc cgg ccc ggg acc tcc acg gcc gcg ctc ctg gcg	734
Ala Asp Thr Ala Ser Arg Pro Gly Thr Ser Thr Ala Ala Leu Leu Ala	
210 215 220	
cac ctg cag cgg cgg cgc gag gct atg cgc gcc gag ggc gcc ccc gcc	782
His Leu Gln Arg Arg Arg Glu Ala Met Arg Ala Glu Gly Ala Pro Ala	
225 230 235	
tca ccg ccc agc acc ggc acg cgc acc tgc acg gtg act gaa ggc aag	830
Ser Pro Pro Ser Thr Gly Thr Arg Thr Cys Thr Val Thr Glu Gly Lys	
240 245 250	
cac gcg cgc ctc agc tgc tac gtg acc ggc gag ccc aag ccc gag acg	878
His Ala Arg Leu Ser Cys Tyr Val Thr Gly Glu Pro Lys Pro Glu Thr	
255 260 265	
gtg tgg aag aag gac ggc cag ctg gtg acc gag ggc cgg cgc cac gtg	926
Val Trp Lys Lys Asp Gly Gln Leu Val Thr Glu Gly Arg Arg His Val	
270 275 280 285	
gtg tac gag gac gcg cag gag aac ttc gtg ctc aag atc ctc ttc tgc	974
Val Tyr Glu Asp Ala Gln Glu Asn Phe Val Leu Lys Ile Leu Phe Cys	
290 295 300	
aag cag tcg gac cgc ggc ctc tac acc tgc acg gcg tcc aac ctc gtg	1022
Lys Gln Ser Asp Arg Gly Leu Tyr Thr Cys Thr Ala Ser Asn Leu Val	
305 310 315	
ggc cag acc tac agc tct gtg ctg gtc gta gtg cgc gag ccc gcg gtt	1070
Gly Gln Thr Tyr Ser Ser Val Leu Val Val Val Arg Glu Pro Ala Val	
320 325 330	
ccc ttc aaa aag cgg ctg caa gat ctg gag gtg cgg gag aag gag tcg	1118
Pro Phe Lys Lys Arg Leu Gln Asp Leu Glu Val Arg Glu Lys Glu Ser	
335 340 345	

gct acg ttc cta tgt gag gtg ccc cag ccg tcc act gag gcc gcg tgg	1166
Ala Thr Phe Leu Cys Glu Val Pro Gln Pro Ser Thr Glu Ala Ala Trp	
350 355 360 365	
ttc aag gag gag acg cgg ttg tgg gcg agc gcc aag tac ggc atc gag	1214
Phe Lys Glu Glu Thr Arg Leu Trp Ala Ser Ala Lys Tyr Gly Ile Glu	
370 375 380	
gag gag ggc acc gag cgc cgc ctg acc gtg cgc aat gtc tcg gcc gac	1262
Glu Glu Gly Thr Glu Arg Arg Leu Thr Val Arg Asn Val Ser Ala Asp	
385 390 395	
gac gac gcg gtg tac atc tgc gag acg cca gag ggc agc cgc acg gtg	1310
Asp Asp Ala Val Tyr Ile Cys Glu Thr Pro Glu Gly Ser Arg Thr Val	
400 405 410	
gcg gag ctc gca gtc caa gga aac ctc ctc cga aag ctc cct cgg aag	1358
Ala Glu Leu Ala Val Gln Gly Asn Leu Leu Arg Lys Leu Pro Arg Lys	
415 420 425	
acg gcg gtg cgc gtg ggc gac acg gct atg ttt tgc gtg gag ctg gcg	1406
Thr Ala Val Arg Val Gly Asp Thr Ala Met Phe Cys Val Glu Leu Ala	
430 435 440 445	
gtc ccg gtg ggc ccc gtc cac tgg ctg cgg aac cag gag gaa gtg gtg	1454
Val Pro Val Gly Pro Val His Trp Leu Arg Asn Gln Glu Glu Val Val	
450 455 460	
gcg ggg ggc cgc gtg gcc atc tcc gcg gag ggc acg cgc cac aca ctg	1502
Ala Gly Gly Arg Val Ala Ile Ser Ala Glu Gly Thr Arg His Thr Leu	
465 470 475	
acc atc tcc cag tgc tgc ctg gag gat gtg ggc cag gtg gcc ttt atg	1550
Thr Ile Ser Gln Cys Cys Leu Glu Asp Val Gly Gln Val Ala Phe Met	
480 485 490	
gct ggc gac tgc cag acg tcc acc cgg ttc tgc gtg tcg gcc ccc agg	1598
Ala Gly Asp Cys Gln Thr Ser Thr Arg Phe Cys Val Ser Ala Pro Arg	
495 500 505	
aag cct ccc ctg caa ccc cct gtg gat cct gtg gta aag gcc agg atg	1646
Lys Pro Pro Leu Gln Pro Pro Val Asp Pro Val Val Lys Ala Arg Met	
510 515 520 525	
gag agt tcc gtg att ctc agc tgg tcc cca cca ccc cat ggg gaa cgc	1694
Glu Ser Ser Val Ile Leu Ser Trp Ser Pro Pro Pro His Gly Glu Arg	
530 535 540	
cct gtc act atc gac ggc tac ctg gta gag aag aag aag ctt ggc acc	1742
Pro Val Thr Ile Asp Gly Tyr Leu Val Glu Lys Lys Lys Leu Gly Thr	
545 550 555	
tac acc tgg atc agg tgc cac gag gct gaa tgg gtg gct aca cct gag	1790
Tyr Thr Trp Ile Arg Cys His Glu Ala Glu Trp Val Ala Thr Pro Glu	
560 565 570	
ctg acc gtg gct gat gtg gcg gag gag ggg aac ttc cag ttc cga gtg	1838
Leu Thr Val Ala Asp Val Ala Glu Glu Gly Asn Phe Gln Phe Arg Val	
575 580 585	
tcc gct ctc aac agc ttt ggt cag agt ccc tac ctc gag ttc ccg ggg	1886

Ser	Ala	Leu	Asn	Ser	Phe	Gly	Gln	Ser	Pro	Tyr	Leu	Glu	Phe	Pro	Gly		
590					595					600					605		
act	gtc	cac	ctg	gcc	ccc	aag	ctg	gcc	gtg	agg	aca	ccg	ctg	aag	gcg	1934	
Thr	Val	His	Leu	Ala	Pro	Lys	Leu	Ala	Val	Arg	Thr	Pro	Leu	Lys	Ala		
			610						615					620			
gtg	cag	gcg	gta	gag	ggg	ggc	gag	gtc	act	ttc	tcc	gtg	gac	ctc	acg	1982	
Val	Gln	Ala	Val	Glu	Gly	Gly	Glu	Val	Thr	Phe	Ser	Val	Asp	Leu	Thr		
			625					630					635				
gtg	gcc	tca	gcg	ggg	gag	tgg	ttc	ctg	gat	ggg	cag	gcc	ctg	aag	gcc	2030	
Val	Ala	Ser	Ala	Gly	Glu	Trp	Phe	Leu	Asp	Gly	Gln	Ala	Leu	Lys	Ala		
			640					645				650					
agc	agt	gtg	tat	gag	atc	cac	tgt	gat	cgc	acc	cgg	cac	acg	ctc	acc	2078	
Ser	Ser	Val	Tyr	Glu	Ile	His	Cys	Asp	Arg	Thr	Arg	His	Thr	Leu	Thr		
			655			660					665						
atc	cgg	gag	gtg	ccc	gcc	agc	ctg	cac	ggg	gcg	cag	ctg	aag	ttc	gtg	2126	
Ile	Arg	Glu	Val	Pro	Ala	Ser	Leu	His	Gly	Ala	Gln	Leu	Lys	Phe	Val		
670					675					680					685		
gcc	aac	ggc	att	gag	agc	agc	atc	cgg	atg	gag	gtc	cgg	gcg	gcc	cca	2174	
Ala	Asn	Gly	Ile	Glu	Ser	Ser	Ile	Arg	Met	Glu	Val	Arg	Ala	Ala	Pro		
				690					695						700		
ggg	ctg	act	gcc	aac	aag	ccg	cca	gcc	gca	gct	gcc	cgg	gag	gtg	ctg	2222	
Gly	Leu	Thr	Ala	Asn	Lys	Pro	Pro	Ala	Ala	Ala	Ala	Arg	Glu	Val	Leu		
			705					710					715				
gct	cgg	ctg	cac	gag	gag	gcg	cag	ctg	ctg	gct	gag	ctg	tca	gat	cag	2270	
Ala	Arg	Leu	His	Glu	Glu	Ala	Gln	Leu	Leu	Ala	Glu	Leu	Ser	Asp	Gln		
			720				725					730					
gct	gcg	gct	gtg	acg	tgg	ctg	aag	gat	ggg	cgc	aca	ctg	tcc	cca	ggc	2318	
Ala	Ala	Ala	Val	Thr	Trp	Leu	Lys	Asp	Gly	Arg	Thr	Leu	Ser	Pro	Gly		
			735			740					745						
ccc	aag	tat	gag	gtg	cag	gca	tcg	gcc	ggg	cgg	cgg	gtg	ctc	ctt	gtg	2366	
Pro	Lys	Tyr	Glu	Val	Gln	Ala	Ser	Ala	Gly	Arg	Arg	Val	Leu	Leu	Val		
750					755					760					765		
cga	gat	gtg	gcc	cgg	gac	gat	gca	ggc	ctc	tac	gag	tgc	gtc	agc	cgc	2414	
Arg	Asp	Val	Ala	Arg	Asp	Asp	Ala	Gly	Leu	Tyr	Glu	Cys	Val	Ser	Arg		
			770						775					780			
ggg	ggc	cgc	atc	gcc	tac	cag	ctc	tcc	gtg	caa	ggc	ctc	gcg	cgc	ttt	2462	
Gly	Gly	Arg	Ile	Ala	Tyr	Gln	Leu	Ser	Val	Gln	Gly	Leu	Ala	Arg	Phe		
			785					790					795				
ctg	cac	aag	gac	atg	gcg	ggc	agc	tgt	gtg	gat	gcc	gtg	gct	ggg	ggc	2510	
Leu	His	Lys	Asp	Met	Ala	Gly	Ser	Cys	Val	Asp	Ala	Val	Ala	Gly	Gly		
			800				805					810					
ccg	gcg	cag	ttt	gag	tgt	gag	acc	tcc	gaa	gcc	cac	gtc	cac	gtg	cac	2558	
Pro	Ala	Gln	Phe	Glu	Cys	Glu	Thr	Ser	Glu	Ala	His	Val	His	Val	His		
			815			820					825						
tgg	tac	aag	gat	ggc	atg	gag	ctg	ggc	cac	tcc	ggg	gag	cgc	ttc	ttg	2606	
Trp	Tyr	Lys	Asp	Gly	Met	Glu	Leu	Gly	His	Ser	Gly	Glu	Arg	Phe	Leu		

830	835	840	845	
cag gag gat gtg ggg acg cgg cac cgg ctg gtg gca gcc aca gtc acc				2654
Gln Glu Asp Val Gly Thr Arg His Arg Leu Val Ala Ala Thr Val Thr	850	855	860	
agg cag gat gaa ggc acc tac tcc tgc cgc gtg ggc gag gac tct gtg				2702
Arg Gln Asp Glu Gly Thr Tyr Ser Cys Arg Val Gly Glu Asp Ser Val	865	870	875	
gac ttc cgg ctc cgc gtc tct gag ccc aag gtg gtg ttt gct aag gag				2750
Asp Phe Arg Leu Arg Val Ser Glu Pro Lys Val Val Phe Ala Lys Glu	880	885	890	
cag ctg gca cgc agg aag ctg cag gca gag gca gga gcc agt gcc aca				2798
Gln Leu Ala Arg Arg Lys Leu Gln Ala Glu Ala Gly Ala Ser Ala Thr	895	900	905	
ctg agc tgc gag gtg gcc cag gcc cag acg gag gtg acg tgg tac aag				2846
Leu Ser Cys Glu Val Ala Gln Ala Gln Thr Glu Val Thr Trp Tyr Lys	910	915	920	925
gat ggg aag aag ctg agc tcc agc tcg aaa gtg tgc atg gag gcc aca				2894
Asp Gly Lys Lys Leu Ser Ser Ser Ser Lys Val Cys Met Glu Ala Thr	930	935	940	
ggc tgc acg cgc agg ctg gtt gtg cag cag gca ggc cag gcg gat gcc				2942
Gly Cys Thr Arg Arg Leu Val Val Gln Gln Ala Gly Gln Ala Asp Ala	945	950	955	
ggg gag tat agc tgc gag gct ggg ggc cag cgg ctc tcc ttc cat ctg				2990
Gly Glu Tyr Ser Cys Glu Ala Gly Gly Gln Arg Leu Ser Phe His Leu	960	965	970	
gat gtc aaa gag ccc aag gtg gtg ttt gcc aag gac cag gtg gca cac				3038
Asp Val Lys Glu Pro Lys Val Val Phe Ala Lys Asp Gln Val Ala His	975	980	985	
agt gag gtg cag gct gag gca ggg gcc aat gcc acg ctg agc tgc gag				3086
Ser Glu Val Gln Ala Glu Ala Gly Ala Asn Ala Thr Leu Ser Cys Glu	990	995	1000	1005
gtg gcc cag gcc cag gcg gag gtg atg tgg tac aaa gat ggg aag aag				3134
Val Ala Gln Ala Gln Ala Glu Val Met Trp Tyr Lys Asp Gly Lys Lys	1010	1015	1020	
ctg agc tcc agc ttg aaa gtg cat gta gag gcc aaa ggc tgc aga cgg				3182
Leu Ser Ser Ser Leu Lys Val His Val Glu Ala Lys Gly Cys Arg Arg	1025	1030	1035	
agg ctg gtg gtg cag cag gca ggc aag acg gat gcc ggg gac tac agc				3230
Arg Leu Val Val Gln Gln Ala Gly Lys Thr Asp Ala Gly Asp Tyr Ser	1040	1045	1050	
tgc gag gcc agg ggc cag agg gtc tcc ttc cgc ctg cac atc aca gag				3278
Cys Glu Ala Arg Gly Gln Arg Val Ser Phe Arg Leu His Ile Thr Glu	1055	1060	1065	
ccc aag atg atg ttt gca aag gag cag tca gtg cat aat gag gtg cag				3326
Pro Lys Met Met Phe Ala Lys Glu Gln Ser Val His Asn Glu Val Gln	1070	1075	1080	1085



gct gag gcg ggg gcc agt gcc atg ctg agc tgt gag gtg gcc cag gcc	3374
Ala Glu Ala Gly Ala Ser Ala Met Leu Ser Cys Glu Val Ala Gln Ala	
1090 1095 1100	
cag acg gag gtg acg tgg tac aag gat ggg aag aag ctg agc tcc agc	3422
Gln Thr Glu Val Thr Trp Tyr Lys Asp Gly Lys Lys Leu Ser Ser Ser	
1105 1110 1115	
tca aaa gtg ggc atg gag gtc aaa ggg tgc aca cgg agg ctg gtg ctg	3470
Ser Lys Val Gly Met Glu Val Lys Gly Cys Thr Arg Arg Leu Val Leu	
1120 1125 1130	
cca cag gcg ggc aaa gca gat gct ggg gag tac agc tgt gag gct ggg	3518
Pro Gln Ala Gly Lys Ala Asp Ala Gly Glu Tyr Ser Cys Glu Ala Gly	
1135 1140 1145	
ggc cag aga gtc tcc ttc cac ctg cac atc aca gag ccc aag ggg gtg	3566
Gly Gln Arg Val Ser Phe His Leu His Ile Thr Glu Pro Lys Gly Val	
1150 1155 1160 1165	
ttt gcg aag gag cag tca gtg cat aat gag gtg cag gct gag gcg ggg	3614
Phe Ala Lys Glu Gln Ser Val His Asn Glu Val Gln Ala Glu Ala Gly	
1170 1175 1180	
acc act gcc atg ctg agc tgt gag gtg gcc cag ccc cag acg gag gtg	3662
Thr Thr Ala Met Leu Ser Cys Glu Val Ala Gln Pro Gln Thr Glu Val	
1185 1190 1195	
acg tgg tac aag gac ggg aag aag ctg agc tcc agc tca aaa gta cgc	3710
Thr Trp Tyr Lys Asp Gly Lys Lys Leu Ser Ser Ser Ser Lys Val Arg	
1200 1205 1210	
atg gag gtc aag ggc tgc aca cga agg ctg gta gtg cag cag gtg ggc	3758
Met Glu Val Lys Gly Cys Thr Arg Arg Leu Val Val Gln Gln Val Gly	
1215 1220 1225	
aaa gca gat gct ggg gag tac agc tgc gag gct ggg ggc cag aga gtc	3806
Lys Ala Asp Ala Gly Glu Tyr Ser Cys Glu Ala Gly Gly Gln Arg Val	
1230 1235 1240 1245	
tcc ttt caa ctg cac atc aca gag ccc aag gca gtg ttt gcc aag gag	3854
Ser Phe Gln Leu His Ile Thr Glu Pro Lys Ala Val Phe Ala Lys Glu	
1250 1255 1260	
cag ttg gtg cat aat gag gtg cgg act gag gca ggg gcc agt gcc aca	3902
Gln Leu Val His Asn Glu Val Arg Thr Glu Ala Gly Ala Ser Ala Thr	
1265 1270 1275	
ctg agc tgt gag gtg gcc cag gcc cag aca gag gtg acg tgg tac aag	3950
Leu Ser Cys Glu Val Ala Gln Ala Gln Thr Glu Val Thr Trp Tyr Lys	
1280 1285 1290	
gat ggg aag aag ctg agc tcc agt tcg aaa gtg cgc ata gag gct gcg	3998
Asp Gly Lys Lys Leu Ser Ser Ser Ser Lys Val Arg Ile Glu Ala Ala	
1295 1300 1305	
ggc tgc atg cgg cag ctg gtg gtg cag cag gca ggc cag gca gat gct	4046
Gly Cys Met Arg Gln Leu Val Val Gln Gln Ala Gly Gln Ala Asp Ala	
1310 1315 1320 1325	

ggg gag tac acc tgt gag gct ggg ggc cag cgg ctc tcc ttc cac ctg	4094
Gly Glu Tyr Thr Cys Glu Ala Gly Gly Gln Arg Leu Ser Phe His Leu	
1330 1335 1340	
gat gtt tca gag ccc aag gcg gtg ttt gca aag gag cag ctg gca cac	4142
Asp Val Ser Glu Pro Lys Ala Val Phe Ala Lys Glu Gln Leu Ala His	
1345 1350 1355	
agg aag gtg cag gcc gag gcg ggg gcc att gcc acg ctg agc tgc gag	4190
Arg Lys Val Gln Ala Glu Ala Gly Ala Ile Ala Thr Leu Ser Cys Glu	
1360 1365 1370	
gtg gcc cag gcc cag aca gag gtg acg tgg tac aag gac ggg aag aag	4238
Val Ala Gln Ala Gln Thr Glu Val Thr Trp Tyr Lys Asp Gly Lys Lys	
1375 1380 1385	
ctg agc tcc agc tcg aaa gtt cga atg gag gct gtg ggc tgc aca cgg	4286
Leu Ser Ser Ser Ser Lys Val Arg Met Glu Ala Val Gly Cys Thr Arg	
1390 1395 1400 1405	
agg ctg gtg gtg cag cag gca tgc cag gcg gac acc ggg gag tat agc	4334
Arg Leu Val Val Gln Gln Ala Cys Gln Ala Asp Thr Gly Glu Tyr Ser	
1410 1415 1420	
tgc gag gcc ggg ggc cag cgg ctc tcc ttc agc ctg gac gtg gca gag	4382
Cys Glu Ala Gly Gly Gln Arg Leu Ser Phe Ser Leu Asp Val Ala Glu	
1425 1430 1435	
ccc aag gtg gtg ttt gcc aag gag cag cca gtg cac agg gag gtg cag	4430
Pro Lys Val Val Phe Ala Lys Glu Gln Pro Val His Arg Glu Val Gln	
1440 1445 1450	
gcc cag gcg ggg gcc agc acc aca ctc agc tgc gag gtg gct cag gcc	4478
Ala Gln Ala Gly Ala Ser Thr Thr Leu Ser Cys Glu Val Ala Gln Ala	
1455 1460 1465	
cag acg gag gtg atg tgg tac aag gac ggg aag aag ctg agc ttc agc	4526
Gln Thr Glu Val Met Trp Tyr Lys Asp Gly Lys Lys Leu Ser Phe Ser	
1470 1475 1480 1485	
tcg aaa gtg cgc atg gag gct gtg ggc tgc aca cgg agg ctg gtg gtg	4574
Ser Lys Val Arg Met Glu Ala Val Gly Cys Thr Arg Arg Leu Val Val	
1490 1495 1500	
cag cag gcg ggc cag gcg gac gcc ggg gag tac agc tgc gag gcg ggg	4622
Gln Gln Ala Gly Gln Ala Asp Ala Gly Glu Tyr Ser Cys Glu Ala Gly	
1505 1510 1515	
agc cag cgg ctc tcc ttc cac ctg cac gtg gca gag ccc aag gcg gtg	4670
Ser Gln Arg Leu Ser Phe His Leu His Val Ala Glu Pro Lys Ala Val	
1520 1525 1530	
ttt gcc aag gag cag cca gcg agc agg gag gtg cag gct gag gcg ggg	4718
Phe Ala Lys Glu Gln Pro Ala Ser Arg Glu Val Gln Ala Glu Ala Gly	
1535 1540 1545	
acc agt gcc acg ctg agc tgc gag gtg gcc cag gcc cag aca gag gtg	4766
Thr Ser Ala Thr Leu Ser Cys Glu Val Ala Gln Ala Gln Thr Glu Val	
1550 1555 1560 1565	
acg tgg tac aag gac ggg aag aaa ctg agc tcc agc tcg aaa gtg cga	4814

Thr	Trp	Tyr	Lys	Asp	Gly	Lys	Lys	Leu	Ser	Ser	Ser	Ser	Lys	Val	Arg		
				1570					1575					1580			
atg	gag	gcc	gtg	ggc	tgc	aca	cgg	agg	ctg	gtg	gtg	cag	gag	gca	ggc	4862	
Met	Glu	Ala	Val	Gly	Cys	Thr	Arg	Arg	Leu	Val	Val	Gln	Glu	Ala	Gly		
			1585					1590					1595				
cag	gcg	gac	gcc	ggg	gag	tac	agc	tgc	aag	gcc	ggg	gat	cag	cgg	ctg	4910	
Gln	Ala	Asp	Ala	Gly	Glu	Tyr	Ser	Cys	Lys	Ala	Gly	Asp	Gln	Arg	Leu		
		1600					1605					1610					
tcc	ttc	cac	ctg	cac	gtg	gca	gag	ccc	aag	gtg	gtg	ttt	gcc	aag	gag	4958	
Ser	Phe	His	Leu	His	Val	Ala	Glu	Pro	Lys	Val	Val	Phe	Ala	Lys	Glu		
	1615					1620					1625						
cag	cca	gca	cac	agg	gag	gtg	cag	gct	gag	gcg	ggg	gcc	agt	gcc	acg	5006	
Gln	Pro	Ala	His	Arg	Glu	Val	Gln	Ala	Glu	Ala	Gly	Ala	Ser	Ala	Thr		
1630					1635				1640					1645			
ctg	agc	tgc	gag	gtg	gcc	cag	gcc	cag	aca	gag	gtg	acg	tgg	tac	aag	5054	
Leu	Ser	Cys	Glu	Val	Ala	Gln	Ala	Gln	Thr	Glu	Val	Thr	Trp	Tyr	Lys		
			1650					1655						1660			
gat	ggg	aag	aag	ctg	agt	tcc	agc	tcg	aaa	gtg	cgc	gtg	gag	gcc	gtg	5102	
Asp	Gly	Lys	Lys	Leu	Ser	Ser	Ser	Ser	Lys	Val	Arg	Val	Glu	Ala	Val		
			1665					1670					1675				
ggc	tgc	aca	cgg	agg	ctg	gtg	gtg	cag	cag	gcg	ggc	cag	gcg	gat	gct	5150	
Gly	Cys	Thr	Arg	Arg	Leu	Val	Val	Gln	Gln	Ala	Gly	Gln	Ala	Asp	Ala		
		1680					1685					1690					
ggg	gag	tac	agc	tgt	gag	gcg	ggg	ggc	caa	cgg	ctg	tcc	ttc	cgc	ctg	5198	
Gly	Glu	Tyr	Ser	Cys	Glu	Ala	Gly	Gly	Gln	Arg	Leu	Ser	Phe	Arg	Leu		
	1695					1700					1705						
cac	gtg	gca	gag	ctg	gag	ccc	caa	att	tca	gag	aga	ccc	tgc	cgc	agg	5246	
His	Val	Ala	Glu	Leu	Glu	Pro	Gln	Ile	Ser	Glu	Arg	Pro	Cys	Arg	Arg		
1710					1715				1720					1725			
gag	cct	ctg	gtg	gtc	aag	gag	cat	gaa	gac	atc	atc	ctg	acc	gcc	aca	5294	
Glu	Pro	Leu	Val	Val	Lys	Glu	His	Glu	Asp	Ile	Ile	Leu	Thr	Ala	Thr		
			1730					1735						1740			
ctg	gcc	aca	ccc	tct	gcg	gcc	acg	gtg	acc	tgg	ctc	aag	gat	ggt	gtg	5342	
Leu	Ala	Thr	Pro	Ser	Ala	Ala	Thr	Val	Thr	Trp	Leu	Lys	Asp	Gly	Val		
		1745						1750					1755				
gag	att	cgc	cgc	agc	aag	cgg	cat	gag	aca	gcc	agc	cag	ggg	gac	acc	5390	
Glu	Ile	Arg	Arg	Ser	Lys	Arg	His	Glu	Thr	Ala	Ser	Gln	Gly	Asp	Thr		
	1760					1765						1770					
cac	acc	ctg	acc	gtg	cat	ggc	gcc	cag	gtt	ctg	gac	agc	gcc	atc	tac	5438	
His	Thr	Leu	Thr	Val	His	Gly	Ala	Gln	Val	Leu	Asp	Ser	Ala	Ile	Tyr		
	1775					1780				1785							
agc	tgc	cgt	gtg	ggc	gca	gag	ggg	cag	gac	ttc	cca	gtg	cag	gtg	gaa	5486	
Ser	Cys	Arg	Val	Gly	Ala	Glu	Gly	Gln	Asp	Phe	Pro	Val	Gln	Val	Glu		
1790				1795				1800					1805				
gag	gtg	gcc	gcc	aag	ttc	tgc	cgg	ctg	ctg	gag	cct	gtg	tgc	ggc	gag	5534	
Glu	Val	Ala	Ala	Lys	Phe	Cys	Arg	Leu	Leu	Glu	Pro	Val	Cys	Gly	Glu		

1810	1815	1820	
ctg ggt ggc acg gtg aca	ctg gcc tgc gag cta agc cca	gcg tgt gca	5582
Leu Gly Gly Thr Val Thr	Leu Ala Cys Glu Leu Ser Pro	Ala Cys Ala	
1825	1830	1835	
gag gtg gtg tgg cgc tgc	ggc aac acg cag cct cgg	gtg ggc aag cgc	5630
Glu Val Val Trp Arg Cys	Gly Asn Thr Gln Pro Arg	Val Gly Lys Arg	
1840	1845	1850	
ttc cag atg gtg gcc gag	ggg ccc gtg cgc tca ctc	act gtg ttg ggg	5678
Phe Gln Met Val Ala Glu	Gly Pro Val Arg Ser Leu	Thr Val Leu Gly	
1855	1860	1865	
ctg cgc gca gag gac gca	ggg gag tac gtg tgt	gag agc cgt gat gac	5726
Leu Arg Ala Glu Asp Ala	Gly Glu Tyr Val Cys Glu	Ser Arg Asp Asp	
1870	1875	1880 1885	
cac acc agt gcg cag ctc	acc gtc agt gtg ccc cga	gtg gtg aag ttt	5774
His Thr Ser Ala Gln Leu	Thr Val Ser Val Pro Arg	Val Val Lys Phe	
1890	1895	1900	
atg tct ggg ctg agc acc	gtg gtc gca gag gag ggc	ggc gag gcc acc	5822
Met Ser Gly Leu Ser Thr	Val Val Ala Glu Glu Gly	Gly Glu Ala Thr	
1905	1910	1915	
ttc cag tgc gtg gtg tcc	ccc agt gat gtg gca gtc	gtg tgg ttc cgg	5870
Phe Gln Cys Val Val Ser	Pro Ser Asp Val Ala Val	Val Trp Phe Arg	
1920	1925	1930	
gac ggt gcc ctg ctt cag	ccc agc gag aag ttt gcc	ata tca cag agt	5918
Asp Gly Ala Leu Leu Gln	Pro Ser Glu Lys Phe Ala	Ile Ser Gln Ser	
1935	1940	1945	
ggc gcc agc cac agc ctg	acc atc tca gac ctg gtg	ctg gag gac gcg	5966
Gly Ala Ser His Ser Leu	Thr Ile Ser Asp Leu Val	Leu Glu Asp Ala	
1950	1955	1960 1965	
ggc cag atc acc gtg gag	gct gag ggc gcc tca tcc	tct gct gcc ctg	6014
Gly Gln Ile Thr Val Glu	Ala Glu Gly Ala Ser Ser	Ser Ala Ala Leu	
1970	1975	1980	
agg gtc cga gag gcg cct	gtg ctg ttc aaa aag aag	ctg gag ccg cag	6062
Arg Val Arg Glu Ala Pro	Val Leu Phe Lys Lys Lys	Leu Glu Pro Gln	
1985	1990	1995	
acg gtg gag gag cgg agc	tcg gtg acc ctg gag gtg	gag ctg acg cgg	6110
Thr Val Glu Glu Arg Ser	Ser Val Thr Leu Glu Val	Glu Leu Thr Arg	
2000	2005	2010	
ccg tgg ccg gag ctg agg	tgg aca cgg aac gcg acg	gcc ctg gcg ccg	6158
Pro Trp Pro Glu Leu Arg	Trp Thr Arg Asn Ala Thr	Ala Leu Ala Pro	
2015	2020	2025	
gga aag aac gtg gag atc	cac gcc gag ggc gcc cgc	cac cgc ctg gtt	6206
Gly Lys Asn Val Glu Ile	His Ala Glu Gly Ala Arg	His Arg Leu Val	
2030	2035	2040 2045	
ctg cac aac gta ggt ttt	gcc gac cgt ggc ttc ttt	ggc tgc gag acg	6254
Leu His Asn Val Gly Phe	Ala Asp Arg Gly Phe Phe	Gly Cys Glu Thr	
2050	2055	2060	

ccg gat gac aag aca cag gcc aaa ctc acc gtg gag atg cgc cag gta	6302
Pro Asp Asp Lys Thr Gln Ala Lys Leu Thr Val Glu Met Arg Gln Val	
2065 2070 2075	
cgg ctc gta cgg ggc ctg cag gca gtg gag gca cgg gag cag ggc acg	6350
Arg Leu Val Arg Gly Leu Gln Ala Val Glu Ala Arg Glu Gln Gly Thr	
2080 2085 2090	
gct acc atg gag gtg cag ctg tcg cat gcg gac gtg gat ggc agc tgg	6398
Ala Thr Met Glu Val Gln Leu Ser His Ala Asp Val Asp Gly Ser Trp	
2095 2100 2105	
act cgt gac ggt ctg cgg ttc cag cag ggg ccc acg tgc cac ctg gct	6446
Thr Arg Asp Gly Leu Arg Phe Gln Gln Gly Pro Thr Cys His Leu Ala	
2110 2115 2120 2125	
gtg cgg ggc ccc atg cac acc ctc aca ctc tcg ggg ctg cgg cca gag	6494
Val Arg Gly Pro Met His Thr Leu Thr Leu Ser Gly Leu Arg Pro Glu	
2130 2135 2140	
gat agt ggc ctt atg gtc ttc aag gcc gaa gga gtg cac acg tcg gcg	6542
Asp Ser Gly Leu Met Val Phe Lys Ala Glu Gly Val His Thr Ser Ala	
2145 2150 2155	
cgg ctc gtg gtc acc gag ctt ccc gtg agc ttc agc cgc ccg ctg cag	6590
Arg Leu Val Val Thr Glu Leu Pro Val Ser Phe Ser Arg Pro Leu Gln	
2160 2165 2170	
gac gtg gtg acc act gag aag gag aag gtt acc ctg gag tgc gag ctg	6638
Asp Val Val Thr Thr Glu Lys Glu Lys Val Thr Leu Glu Cys Glu Leu	
2175 2180 2185	
tcg cgt cct aat gtg gat gtg cgc tgg ctg aag gac ggt gtg gag ctg	6686
Ser Arg Pro Asn Val Asp Val Arg Trp Leu Lys Asp Gly Val Glu Leu	
2190 2195 2200 2205	
cgg gca ggc aag acg atg gcc atc gca gcc cag ggc gcc tgc agg agc	6734
Arg Ala Gly Lys Thr Met Ala Ile Ala Ala Gln Gly Ala Cys Arg Ser	
2210 2215 2220	
ctc acc att tac cgg tgc gag ttc gcg gat cag gga gtg tat gtg tgt	6782
Leu Thr Ile Tyr Arg Cys Glu Phe Ala Asp Gln Gly Val Tyr Val Cys	
2225 2230 2235	
gat gcc cat gat gcc cag agc tct gcc tcc gtg aag gta caa gga agg	6830
Asp Ala His Asp Ala Gln Ser Ser Ala Ser Val Lys Val Gln Gly Arg	
2240 2245 2250	
aca tac act ctc atc tac cgg aga gtc ctg gcg gaa gat gca gga gag	6878
Thr Tyr Thr Leu Ile Tyr Arg Arg Val Leu Ala Glu Asp Ala Gly Glu	
2255 2260 2265	
atc caa ttt gta gcc gaa aat gca gaa tcg cga gcc cag ctc cga gtg	6926
Ile Gln Phe Val Ala Glu Asn Ala Glu Ser Arg Ala Gln Leu Arg Val	
2270 2275 2280 2285	
aag gag ctg cca gtg acc ctc gtg cgc ccg ctg cgg gac aag att gcc	6974
Lys Glu Leu Pro Val Thr Leu Val Arg Pro Leu Arg Asp Lys Ile Ala	
2290 2295 2300	

atg gag aag cac cgc ggt gtg ctg gag tgt cag gtg tcc cgg gcc agc	7022
Met Glu Lys His Arg Gly Val Leu Glu Cys Gln Val Ser Arg Ala Ser	
2305 2310 2315	
gcc cag gtg cgg tgg ttc aag ggc agt cag gag ctg cag ccc ggg ccc	7070
Ala Gln Val Arg Trp Phe Lys Gly Ser Gln Glu Leu Gln Pro Gly Pro	
2320 2325 2330	
aag tac gag ctg gtc agt gat ggc ctc tac cgc aag ctg atc atc agt	7118
Lys Tyr Glu Leu Val Ser Asp Gly Leu Tyr Arg Lys Leu Ile Ile Ser	
2335 2340 2345	
gat gtc cac gca gag gac gag gac acc tac acc tgt gac gcc ggt gat	7166
Asp Val His Ala Glu Asp Glu Asp Thr Tyr Thr Cys Asp Ala Gly Asp	
2350 2355 2360 2365	
gtc aag acc agt gca cag ttc ttc gtg gaa gag caa tcc atc acc att	7214
Val Lys Thr Ser Ala Gln Phe Phe Val Glu Glu Gln Ser Ile Thr Ile	
2370 2375 2380	
gtg cgg ggt ctg cag gac gtg aca gtg atg gag ccc gct cct gcc tgg	7262
Val Arg Gly Leu Gln Asp Val Thr Val Met Glu Pro Ala Pro Ala Trp	
2385 2390 2395	
ttt gag tgt gag acc tcc atc ccc tca gtg cgg cca cct aag tgg ctc	7310
Phe Glu Cys Glu Thr Ser Ile Pro Ser Val Arg Pro Pro Lys Trp Leu	
2400 2405 2410	
ctg ggg aag acg gtg ttg cag gct ggg ggg aac gtg ggc ctg gag cag	7358
Leu Gly Lys Thr Val Leu Gln Ala Gly Gly Asn Val Gly Leu Glu Gln	
2415 2420 2425	
gag ggc acg gtg cac cgg ctg atg ctg cgg cgg acc tgc tcc acc atg	7406
Glu Gly Thr Val His Arg Leu Met Leu Arg Arg Thr Cys Ser Thr Met	
2430 2435 2440 2445	
acc ggg ccc gtg cac ttc acc gtt ggc aag tcg cgc tcc tct gcc cgc	7454
Thr Gly Pro Val His Phe Thr Val Gly Lys Ser Arg Ser Ser Ala Arg	
2450 2455 2460	
ctg gtg gtc tca gac atc ccc gta gtc ctc aca cgg ccg ttg gag ccc	7502
Leu Val Val Ser Asp Ile Pro Val Val Leu Thr Arg Pro Leu Glu Pro	
2465 2470 2475	
aag aca ggg cgt gag ctg cag tca gtg gtc ctg tcc tgc gac ttc cgg	7550
Lys Thr Gly Arg Glu Leu Gln Ser Val Val Leu Ser Cys Asp Phe Arg	
2480 2485 2490	
cca gcc ccc aag gct gtg cag tgg tac aag gat gac acg ccc ctg tct	7598
Pro Ala Pro Lys Ala Val Gln Trp Tyr Lys Asp Asp Thr Pro Leu Ser	
2495 2500 2505	
ccc tct gag aag ttt aag atg agc ctg gag ggt cag atg gct gag ctg	7646
Pro Ser Glu Lys Phe Lys Met Ser Leu Glu Gly Gln Met Ala Glu Leu	
2510 2515 2520 2525	
cgc atc ctc cgg ctc atg cct gct gat gct ggt gtc tac cgg tgc cag	7694
Arg Ile Leu Arg Leu Met Pro Ala Asp Ala Gly Val Tyr Arg Cys Gln	
2530 2535 2540	
gcg ggc agt gcc cac agc agc act gag gtc act gtg gaa gcg cgg gag	7742

Ala Gly Ser Ala His Ser Ser Thr Glu Val Thr Val Glu Ala Arg Glu	
2545	2550 2555
gtg aca gtg aca ggg ccg cta cag gat gca gag gcc acg gag gag ggc	7790
Val Thr Val Thr Gly Pro Leu Gln Asp Ala Glu Ala Thr Glu Glu Gly	
2560	2565 2570
tgg gcc agc ttc tcc tgt gag ctg tcc cac gag gat gag gag gtc gag	7838
Trp Ala Ser Phe Ser Cys Glu Leu Ser His Glu Asp Glu Glu Val Glu	
2575	2580 2585
tgg tcg ctc aac ggg atg ccc ctg tac aac gac agc ttc cat gag atc	7886
Trp Ser Leu Asn Gly Met Pro Leu Tyr Asn Asp Ser Phe His Glu Ile	
2590	2595 2600 2605
tca cac aag ggc cgg cgc cac acg ctg gta ctg aag agc atc cag cgg	7934
Ser His Lys Gly Arg Arg His Thr Leu Val Leu Lys Ser Ile Gln Arg	
2610	2615 2620
gct gat gcg ggc ata gta cgc gcc tcc tcc ctg aag gtg tcg acc tct	7982
Ala Asp Ala Gly Ile Val Arg Ala Ser Ser Leu Lys Val Ser Thr Ser	
2625	2630 2635
gcc cgc ctg gag gtc cga gtg aag ccg gtg gtg ttc ctg aag gcg ctg	8030
Ala Arg Leu Glu Val Arg Val Lys Pro Val Val Phe Leu Lys Ala Leu	
2640	2645 2650
gat gac ctg tcc gca gag gag cgc gcc acc ctg gcc ctg cag tgt gaa	8078
Asp Asp Leu Ser Ala Glu Glu Arg Gly Thr Leu Ala Leu Gln Cys Glu	
2655	2660 2665
gtc tct gac ccc gag gcc cat gtg gtg tgg cgc aaa gat gcc gtg cag	8126
Val Ser Asp Pro Glu Ala His Val Val Trp Arg Lys Asp Gly Val Gln	
2670	2675 2680 2685
ctg gcc ccc agt gac aag tat gac ttc ctg cac acg gcg gcc acg cgg	8174
Leu Gly Pro Ser Asp Lys Tyr Asp Phe Leu His Thr Ala Gly Thr Arg	
2690	2695 2700
ggg ctc gtg gtg cat gac gtg agc cct gaa gac gcc gcc ctg tac acc	8222
Gly Leu Val Val His Asp Val Ser Pro Glu Asp Ala Gly Leu Tyr Thr	
2705	2710 2715
tgc cac gtg gcc tcc gag gag acc cgg gcc cgg gtc cgc gtg cac gat	8270
Cys His Val Gly Ser Glu Glu Thr Arg Ala Arg Val Arg Val His Asp	
2720	2725 2730
ctg cac gtg gcc atc acc aag agg ctg aag aca atg gag gtg ctg gaa	8318
Leu His Val Gly Ile Thr Lys Arg Leu Lys Thr Met Glu Val Leu Glu	
2735	2740 2745
ggg gaa agc tgc agc ttt gag tgc gtc ctg tcc cac gag agt gcc agc	8366
Gly Glu Ser Cys Ser Phe Glu Cys Val Leu Ser His Glu Ser Ala Ser	
2750	2755 2760 2765
gac ccg gcc atg tgg aca gtc ggt ggg aag aca gtg gcc agc tcc agc	8414
Asp Pro Ala Met Trp Thr Val Gly Gly Lys Thr Val Gly Ser Ser Ser	
2770	2775 2780
cgc ttc cag gcc aca cgt cag gcc cga aaa tac atc ctg gtg gtc cgg	8462
Arg Phe Gln Ala Thr Arg Gln Gly Arg Lys Tyr Ile Leu Val Val Arg	

2785	2790	2795	
gag gct gca cca agt gat gcc ggg gag gtg gtc ttc tct gtg cgg ggc			8510
Glu Ala Ala Pro Ser Asp Ala Gly Glu Val Val Phe Ser Val Arg Gly			
2800	2805	2810	
ctc acc tcc aag gcc tca ctc att gtc aga gag agg ccg gcc gcc atc			8558
Leu Thr Ser Lys Ala Ser Leu Ile Val Arg Glu Arg Pro Ala Ala Ile			
2815	2820	2825	
atc aag ccc ctg gaa gac cag tgg gtg gcg cca ggg gag gac gtg gag			8606
Ile Lys Pro Leu Glu Asp Gln Trp Val Ala Pro Gly Glu Asp Val Glu			
2830	2835	2840	2845
ctg cgc tgt gag ctg tca cgg gcg gga acg ccc gtg cac tgg ctg aag			8654
Leu Arg Cys Glu Leu Ser Arg Ala Gly Thr Pro Val His Trp Leu Lys			
2850	2855	2860	
gac agg aag gcc atc cgc aag agc cag aag tat gat gtg gtc tgc gag			8702
Asp Arg Lys Ala Ile Arg Lys Ser Gln Lys Tyr Asp Val Val Cys Glu			
2865	2870	2875	
ggc acg atg gcc atg ctg gtc atc cgc ggg gcc tcg ctc aag gac gcg			8750
Gly Thr Met Ala Met Leu Val Ile Arg Gly Ala Ser Leu Lys Asp Ala			
2880	2885	2890	
ggc gag tac acg tgt gag gtg gag gct tcc aag agc aca gcc agc ctc			8798
Gly Glu Tyr Thr Cys Glu Val Glu Ala Ser Lys Ser Thr Ala Ser Leu			
2895	2900	2905	
cat gtg gaa gaa aaa gca aac tgc ttc aca gag gag ctg acc aat ctg			8846
His Val Glu Glu Lys Ala Asn Cys Phe Thr Glu Glu Leu Thr Asn Leu			
2910	2915	2920	2925
cag gtg gag gag aaa ggc aca gct gtg ttc acg tgc aag acg gag cac			8894
Gln Val Glu Glu Lys Gly Thr Ala Val Phe Thr Cys Lys Thr Glu His			
2930	2935	2940	
ccc gcg gcc aca gtg acc tgg cgc aag ggc ctc ttg gag cta cgg gcc			8942
Pro Ala Ala Thr Val Thr Trp Arg Lys Gly Leu Leu Glu Leu Arg Ala			
2945	2950	2955	
tca ggg aag cac cag ccc agc cag gag ggc ctg acc ctg cgg ctc acc			8990
Ser Gly Lys His Gln Pro Ser Gln Glu Gly Leu Thr Leu Arg Leu Thr			
2960	2965	2970	
atc agt gcc ctg gag aag gca gac agc gac acc tat acc tgc gac att			9038
Ile Ser Ala Leu Glu Lys Ala Asp Ser Asp Thr Tyr Thr Cys Asp Ile			
2975	2980	2985	
ggc cag gcc cag tcc cgg gcc cag ctc cta gtg caa ggc cgg aga gtg			9086
Gly Gln Ala Gln Ser Arg Ala Gln Leu Leu Val Gln Gly Arg Arg Val			
2990	2995	3000	3005
cac atc atc gag gac ctg gag gat gtg gat gtg cag gag ggc tcc tcg			9134
His Ile Ile Glu Asp Leu Glu Asp Val Asp Val Gln Glu Gly Ser Ser			
3010	3015	3020	
gcc acc ttc cgt tgc cgg atc tcc ccg gcc aac tac gag cct gtg cac			9182
Ala Thr Phe Arg Cys Arg Ile Ser Pro Ala Asn Tyr Glu Pro Val His			
3025	3030	3035	



tgg ttc ctg gac aag aca ccc ctg cat gcc aac gag ctc aat gag atc	9230
Trp Phe Leu Asp Lys Thr Pro Leu His Ala Asn Glu Leu Asn Glu Ile	
3040 3045 3050	
gat gcc cag ccc ggg ggc tac cac gtg ctg acc ctg cgg cag ctg gcg	9278
Asp Ala Gln Pro Gly Gly Tyr His Val Leu Thr Leu Arg Gln Leu Ala	
3055 3060 3065	
ctc aag gac tcg ggc acc atc tac ttt gag gcg ggt gac cag cgg gcc	9326
Leu Lys Asp Ser Gly Thr Ile Tyr Phe Glu Ala Gly Asp Gln Arg Ala	
3070 3075 3080 3085	
tcg gcc gcc ctg cgg gtc act gag aag cca agc gtc ttc tcc cgg gag	9374
Ser Ala Ala Leu Arg Val Thr Glu Lys Pro Ser Val Phe Ser Arg Glu	
3090 3095 3100	
ctc aca gat gcc acc atc aca gag ggt gag gac ttg acc ctg gtg tgc	9422
Leu Thr Asp Ala Thr Ile Thr Glu Gly Glu Asp Leu Thr Leu Val Cys	
3105 3110 3115	
gag acc agc acc tgc gac att cct atg tgc tgg acc aag gat ggg aag	9470
Glu Thr Ser Thr Cys Asp Ile Pro Met Cys Trp Thr Lys Asp Gly Lys	
3120 3125 3130	
acc ctg cgg ggg tct gcc cgg tgc cag ctg agc cat gag ggc cac cgg	9518
Thr Leu Arg Gly Ser Ala Arg Cys Gln Leu Ser His Glu Gly His Arg	
3135 3140 3145	
gcc cag ctg ctc atc act ggg gcc acc ctg cag gac agt gga cgc tac	9566
Ala Gln Leu Leu Ile Thr Gly Ala Thr Leu Gln Asp Ser Gly Arg Tyr	
3150 3155 3160 3165	
aag tgt gag gct ggg ggc gcc tgc agc agc tcc att gtc agg gtg cat	9614
Lys Cys Glu Ala Gly Gly Ala Cys Ser Ser Ser Ile Val Arg Val His	
3170 3175 3180	
gcg cgg cca gtg cgg ttc cag gag gcc ctg aag gac ctg gag gtg ctg	9662
Ala Arg Pro Val Arg Phe Gln Glu Ala Leu Lys Asp Leu Glu Val Leu	
3185 3190 3195	
gag ggt ggt gct gcc aca ctg cgc tgt gtg ctg tca tct gtg gct gcg	9710
Glu Gly Gly Ala Ala Thr Leu Arg Cys Val Leu Ser Ser Val Ala Ala	
3200 3205 3210	
ccc gtg aag tgg tgc tat gga aac aac gtc ctg agg cca ggt gac aaa	9758
Pro Val Lys Trp Cys Tyr Gly Asn Asn Val Leu Arg Pro Gly Asp Lys	
3215 3220 3225	
tac agc cta cgc cag gag ggt gcc atg ctg gag ctg gtg gtc cgg aac	9806
Tyr Ser Leu Arg Gln Glu Gly Ala Met Leu Glu Leu Val Val Arg Asn	
3230 3235 3240 3245	
ctc cgg ccg cag gac agc ggg cgg tac tca tgc tcc ttc ggg gac cag	9854
Leu Arg Pro Gln Asp Ser Gly Arg Tyr Ser Cys Ser Phe Gly Asp Gln	
3250 3255 3260	
act act tct gcc acc ctc aca gtg act gcc ctg cct gcc cag ttc atc	9902
Thr Thr Ser Ala Thr Leu Thr Val Thr Ala Leu Pro Ala Gln Phe Ile	
3265 3270 3275	

ggg aaa ctg aga aac aag gag gcc aca gaa ggg gcc acg gcc acg ctg	9950
Gly Lys Leu Arg Asn Lys Glu Ala Thr Glu Gly Ala Thr Ala Thr Leu	
3280 3285 3290	
cgg tgt gag ctg agc aag aca gcc cct gtg gag tgg aga aag ggg tcc	9998
Arg Cys Glu Leu Ser Lys Thr Ala Pro Val Glu Trp Arg Lys Gly Ser	
3295 3300 3305	
gag acc ctg aga gat ggg gac aga tac tgt ctg agg cag gac ggg gcc	10046
Glu Thr Leu Arg Asp Gly Asp Arg Tyr Cys Leu Arg Gln Asp Gly Ala	
3310 3315 3320 3325	
atg tgt gag ctg cag atc cgt ggc ctg gcc atg gtg gat gcc gcg gag	10094
Met Cys Glu Leu Gln Ile Arg Gly Leu Ala Met Val Asp Ala Ala Glu	
3330 3335 3340	
tac tcg tgt gtg tgt gga gag gag agg acc tca gcc tca ctg acc atc	10142
Tyr Ser Cys Val Cys Gly Glu Glu Arg Thr Ser Ala Ser Leu Thr Ile	
3345 3350 3355	
agg ccc atg cct gcc cac ttc ata gga aga ctg aga cac caa gag agc	10190
Arg Pro Met Pro Ala His Phe Ile Gly Arg Leu Arg His Gln Glu Ser	
3360 3365 3370	
ata gaa ggg gcc aca gcc acg ctg cgg tgt gag ctg agc aag gcg gcc	10238
Ile Glu Gly Ala Thr Ala Thr Leu Arg Cys Glu Leu Ser Lys Ala Ala	
3375 3380 3385	
ccc gtg gag tgg agg aag ggg cgt gag agc ctg aga gat ggg gac aga	10286
Pro Val Glu Trp Arg Lys Gly Arg Glu Ser Leu Arg Asp Gly Asp Arg	
3390 3395 3400 3405	
cat agc ctg agg cag gac ggg gct gtg tgc gag ctg cag atc tgt ggc	10334
His Ser Leu Arg Gln Asp Gly Ala Val Cys Glu Leu Gln Ile Cys Gly	
3410 3415 3420	
ctg gct gtg gca gat gct ggg gag tac tcc tgt gtg tgt ggg gag gag	10382
Leu Ala Val Ala Asp Ala Gly Glu Tyr Ser Cys Val Cys Gly Glu Glu	
3425 3430 3435	
agg acc tct gcc act ctg acc gtg aag gcc ctg cca gcc aag ttc aca	10430
Arg Thr Ser Ala Thr Leu Thr Val Lys Ala Leu Pro Ala Lys Phe Thr	
3440 3445 3450	
gag ggt ctg agg aat gaa gag gcc gtg gaa ggg gcc aca gcc atg ttg	10478
Glu Gly Leu Arg Asn Glu Glu Ala Val Glu Gly Ala Thr Ala Met Leu	
3455 3460 3465	
tgg tgt gaa ctg agc aag gtg gcc cct gtg gag tgg agg aag ggg ccc	10526
Trp Cys Glu Leu Ser Lys Val Ala Pro Val Glu Trp Arg Lys Gly Pro	
3470 3475 3480 3485	
gag aac ctg aga gat ggg gac aga tac atc ctg agg cag gag ggg acc	10574
Glu Asn Leu Arg Asp Gly Asp Arg Tyr Ile Leu Arg Gln Glu Gly Thr	
3490 3495 3500	
agg tgt gag ctg cag atc tgt ggc ctg gcc atg gcg gac gcc ggg gag	10622
Arg Cys Glu Leu Gln Ile Cys Gly Leu Ala Met Ala Asp Ala Gly Glu	
3505 3510 3515	
tac ttg tgt gtg tgc ggg cag gag agg acc tca gcc acg ctg acc atc	10670

Tyr	Leu	Cys	Val	Cys	Gly	Gln	Glu	Arg	Thr	Ser	Ala	Thr	Leu	Thr	Ile		
	3520						3525					3530					
agg	gct	ctg	cct	gcc	agg	ttc	ata	gaa	gat	gtg	aaa	aac	cag	gag	gcc	10718	
Arg	Ala	Leu	Pro	Ala	Arg	Phe	Ile	Glu	Asp	Val	Lys	Asn	Gln	Glu	Ala		
	3535					3540					3545						
aga	gaa	ggg	gcc	acg	gct	gtg	ctg	cag	tgt	gag	ctg	aac	agt	gca	gcc	10766	
Arg	Glu	Gly	Ala	Thr	Ala	Val	Leu	Gln	Cys	Glu	Leu	Asn	Ser	Ala	Ala		
	3550				3555					3560					3565		
cct	gtg	gag	tgg	aga	aag	ggg	tct	gag	acc	ctc	aga	gat	ggg	gac	aga	10814	
Pro	Val	Glu	Trp	Arg	Lys	Gly	Ser	Glu	Thr	Leu	Arg	Asp	Gly	Asp	Arg		
				3570					3575					3580			
tac	agc	ctg	agg	cag	gac	ggg	act	aaa	tgt	gag	ctg	cag	att	cgt	ggc	10862	
Tyr	Ser	Leu	Arg	Gln	Asp	Gly	Thr	Lys	Cys	Glu	Leu	Gln	Ile	Arg	Gly		
			3585					3590					3595				
ctg	gcc	atg	gca	gac	act	ggg	gag	tac	tgc	tgc	gtg	tgc	ggg	cag	gag	10910	
Leu	Ala	Met	Ala	Asp	Thr	Gly	Glu	Tyr	Ser	Cys	Val	Cys	Gly	Gln	Glu		
		3600					3605					3610					
agg	acc	tgc	gct	atg	ctc	acc	gtc	agg	gct	cta	ccc	atc	aag	ttc	aca	10958	
Arg	Thr	Ser	Ala	Met	Leu	Thr	Val	Arg	Ala	Leu	Pro	Ile	Lys	Phe	Thr		
	3615					3620					3625						
gag	ggc	ctg	agg	aac	gaa	gag	gcc	aca	gaa	ggg	gca	aca	gcc	gtg	ctg	11006	
Glu	Gly	Leu	Arg	Asn	Glu	Glu	Ala	Thr	Glu	Gly	Ala	Thr	Ala	Val	Leu		
	3630				3635					3640				3645			
cgg	tgt	gag	ctg	agc	aag	atg	gcc	ccc	gtg	gag	tgg	tgg	aag	ggg	cat	11054	
Arg	Cys	Glu	Leu	Ser	Lys	Met	Ala	Pro	Val	Glu	Trp	Trp	Lys	Gly	His		
				3650				3655						3660			
gag	acc	ctc	aga	gat	gga	gac	aga	cac	agc	ctg	agg	cag	gac	ggg	gcc	11102	
Glu	Thr	Leu	Arg	Asp	Gly	Asp	Arg	His	Ser	Leu	Arg	Gln	Asp	Gly	Ala		
			3665				3670					3675					
agg	tgt	gag	ctg	cag	atc	cgc	ggc	ctc	gtg	gca	gag	gac	gct	ggg	gag	11150	
Arg	Cys	Glu	Leu	Gln	Ile	Arg	Gly	Leu	Val	Ala	Glu	Asp	Ala	Gly	Glu		
		3680				3685					3690						
tac	ctg	tgc	atg	tgc	ggg	aag	gag	agg	acc	tca	gcc	atg	ctc	acc	gtc	11198	
Tyr	Leu	Cys	Met	Cys	Gly	Lys	Glu	Arg	Thr	Ser	Ala	Met	Leu	Thr	Val		
	3695					3700					3705						
agg	gcc	atg	cct	tcc	aag	ttc	ata	gag	ggc	ctg	agg	aac	gaa	gag	gcc	11246	
Arg	Ala	Met	Pro	Ser	Lys	Phe	Ile	Glu	Gly	Leu	Arg	Asn	Glu	Glu	Ala		
	3710				3715					3720				3725			
aca	gaa	ggg	gac	acg	gcc	acg	ctg	tgg	tgt	gag	ctg	agc	aag	gag	gca	11294	
Thr	Glu	Gly	Asp	Thr	Ala	Thr	Leu	Trp	Cys	Glu	Leu	Ser	Lys	Ala	Ala		
			3730					3735					3740				
ccg	gtg	gag	tgg	agg	aag	ggg	cat	gag	acc	ctc	aga	gat	ggg	gac	aga	11342	
Pro	Val	Glu	Trp	Arg	Lys	Gly	His	Glu	Thr	Leu	Arg	Asp	Gly	Asp	Arg		
		3745				3750						3755					
cac	agc	ctg	agg	cag	gac	ggg	tcc	agg	tgt	gag	ctg	cag	atc	cgt	ggc	11390	
His	Ser	Leu	Arg	Gln	Asp	Gly	Ser	Arg	Cys	Glu	Leu	Gln	Ile	Arg	Gly		

3760	3765	3770	
ctg gct gtg gtg gat gcc ggg gag tac tcg tgt gtg tgc ggg cag gag			11438
Leu Ala Val Val Asp Ala Gly Glu Tyr Ser Cys Val Cys Gly Gln Glu			
3775	3780	3785	
agg acc tca gcc aca ctc act gtc agg gcc ctg cct gcc aga ttc ata			11486
Arg Thr Ser Ala Thr Leu Thr Val Arg Ala Leu Pro Ala Arg Phe Ile			
3790	3795	3800	3805
gaa gat gtg aaa aac cag gag gcc aga gaa ggg gcc acg gcc gtg ctg			11534
Glu Asp Val Lys Asn Gln Glu Ala Arg Glu Gly Ala Thr Ala Val Leu			
	3810	3815	3820
caa tgt gag ctg agc aag gcg gcc ccc gtg gag tgg agg aag ggg tct			11582
Gln Cys Glu Leu Ser Lys Ala Ala Pro Val Glu Trp Arg Lys Gly Ser			
	3825	3830	3835
gag acc ctc aga ggt ggg gac aga tac agc ctg agg cag gat ggg acc			11630
Glu Thr Leu Arg Gly Gly Asp Arg Tyr Ser Leu Arg Gln Asp Gly Thr			
	3840	3845	3850
aga tgt gag ctg cag att cat ggc ctg tct gtg gca gac act ggg gag			11678
Arg Cys Glu Leu Gln Ile His Gly Leu Ser Val Ala Asp Thr Gly Glu			
	3855	3860	3865
tac tcg tgt gtg tgc ggg cag gag agg acc tcg gcc aca ctc acc gtc			11726
Tyr Ser Cys Val Cys Gly Gln Glu Arg Thr Ser Ala Thr Leu Thr Val			
3870	3875	3880	3885
agg gcc cca cag cca gtg ttc cgg gag ccg ctg cag agt ctg cag gcg			11774
Arg Ala Pro Gln Pro Val Phe Arg Glu Pro Leu Gln Ser Leu Gln Ala			
	3890	3895	3900
gag gag ggc tcc acg gcc acc ctg cag tgt gag ctg tct gag ccc act			11822
Glu Glu Gly Ser Thr Ala Thr Leu Gln Cys Glu Leu Ser Glu Pro Thr			
	3905	3910	3915
gct aca gtg gtc tgg agc aag ggt ggc ctg cag ctg cag gcc aat ggg			11870
Ala Thr Val Val Trp Ser Lys Gly Gly Leu Gln Leu Gln Ala Asn Gly			
	3920	3925	3930
cgc cgg gag cca cgg ctt cag ggc tgc acc gcg gag ctg gtg tta cag			11918
Arg Arg Glu Pro Arg Leu Gln Gly Cys Thr Ala Glu Leu Val Leu Gln			
	3935	3940	3945
gac cta caa cgt gaa gac act ggc gaa tac act tgc acc tgt ggc tcc			11966
Asp Leu Gln Arg Glu Asp Thr Gly Glu Tyr Thr Cys Thr Cys Gly Ser			
3950	3955	3960	3965
cag gcc acc agt gcc acc ctc act gtc aca gct gcg cct gtg cgg ttc			12014
Gln Ala Thr Ser Ala Thr Leu Thr Val Thr Ala Ala Pro Val Arg Phe			
	3970	3975	3980
ctc cga gag ctg cag cac cag gag gtg gat gag gga ggc acc gca cac			12062
Leu Arg Glu Leu Gln His Gln Glu Val Asp Glu Gly Gly Thr Ala His			
	3985	3990	3995
tta tgc tgc gag ctg agc cgg gcg ggt gcg agc gtg gag tgg cgc aag			12110
Leu Cys Cys Glu Leu Ser Arg Ala Gly Ala Ser Val Glu Trp Arg Lys			
4000	4005	4010	

ggc tcc cta cag ctc ttc cct tgt gcc aag tac cag atg gtg cag gat	12158
Gly Ser Leu Gln Leu Phe Pro Cys Ala Lys Tyr Gln Met Val Gln Asp	
4015 4020 4025	
ggt gca gct gca gag ctg ctg gta cgc gga gtg gag cag gag gat gcg	12206
Gly Ala Ala Ala Glu Leu Leu Val Arg Gly Val Glu Gln Glu Asp Ala	
4030 4035 4040 4045	
ggt gac tac acg tgt gac acg ggc cac acg cag agc atg gcc agc ctc	12254
Gly Asp Tyr Thr Cys Asp Thr Gly His Thr Gln Ser Met Ala Ser Leu	
4050 4055 4060	
tct gtc cgt gtc ccc agg ccc aag ttc aag acc cgg ctt cag agt ctg	12302
Ser Val Arg Val Pro Arg Pro Lys Phe Lys Thr Arg Leu Gln Ser Leu	
4065 4070 4075	
gag cag gag aca ggt gac ata gcc cgg ctg tgc tgt cag ctg agt gat	12350
Glu Gln Glu Thr Gly Asp Ile Ala Arg Leu Cys Cys Gln Leu Ser Asp	
4080 4085 4090	
gca gag tcg ggg gcc gtg gtg caa tgg ctc aag gag ggc gtg gag ctg	12398
Ala Glu Ser Gly Ala Val Val Gln Trp Leu Lys Glu Gly Val Glu Leu	
4095 4100 4105	
cat gcg ggc ccc aag tac gag atg cgg agc cag ggg gcc acg cgg gag	12446
His Ala Gly Pro Lys Tyr Glu Met Arg Ser Gln Gly Ala Thr Arg Glu	
4110 4115 4120 4125	
ctg ctg atc cac caa ctg gag gcc aag gac acg ggc gag tat gcc tgt	12494
Leu Leu Ile His Gln Leu Glu Ala Lys Asp Thr Gly Glu Tyr Ala Cys	
4130 4135 4140	
gtg aca ggc ggc cag aaa acc gct gcc tcc ctc agg gtc aca gag cct	12542
Val Thr Gly Gly Gln Lys Thr Ala Ala Ser Leu Arg Val Thr Glu Pro	
4145 4150 4155	
gag gtg acc att gta cgg ggg ctg gtt gat gcg gag gtg acg gcc gat	12590
Glu Val Thr Ile Val Arg Gly Leu Val Asp Ala Glu Val Thr Ala Asp	
4160 4165 4170	
gag gat gtt gag ttc agc tgt gag gtg tcc agg gct gga gcc aca gcc	12638
Glu Asp Val Glu Phe Ser Cys Glu Val Ser Arg Ala Gly Ala Thr Gly	
4175 4180 4185	
gtg cag tgg tgc cta cag ggc ctg cca ctg caa agc aat gag gtg aca	12686
Val Gln Trp Cys Leu Gln Gly Leu Pro Leu Gln Ser Asn Glu Val Thr	
4190 4195 4200 4205	
gag gtg gct gtg cgg gat ggc cgc atc cac acc ctg cgg ctg aag ggc	12734
Glu Val Ala Val Arg Asp Gly Arg Ile His Thr Leu Arg Leu Lys Gly	
4210 4215 4220	
gtg acg ccc gag gac gct ggc act gtc tcc ttc cat ttg gga aac cat	12782
Val Thr Pro Glu Asp Ala Gly Thr Val Ser Phe His Leu Gly Asn His	
4225 4230 4235	
gct tcc tct gcc cag ctc acc gtc aga gct cct gag gtg acc atc ctg	12830
Ala Ser Ser Ala Gln Leu Thr Val Arg Ala Pro Glu Val Thr Ile Leu	
4240 4245 4250	

gag ccc ctg cag gac gtg cag ctc agt gag ggc cag gat gcc agc ttc Glu Pro Leu Gln Asp Val Gln Leu Ser Glu Gly Gln Asp Ala Ser Phe 4255 4260 4265	12878
cag tgc cgg cta tcc aga gct tca ggc cag gag gcc cgc tgg gct tta Gln Cys Arg Leu Ser Arg Ala Ser Gly Gln Glu Ala Arg Trp Ala Leu 4270 4275 4280 4285	12926
gga ggg gtg ccc ctg cag gcc aac gag atg aat gac atc act gtg gag Gly Gly Val Pro Leu Gln Ala Asn Glu Met Asn Asp Ile Thr Val Glu 4290 4295 4300	12974
cag ggc aca ctc cac ctg ctc acc ctg cac aag gtg acc ctt gag gat Gln Gly Thr Leu His Leu Leu Thr Leu His Lys Val Thr Leu Glu Asp 4305 4310 4315	13022
gct gga act gtc agt ttc cac gtg ggc acg tgt agc tct gag gcc cag Ala Gly Thr Val Ser Phe His Val Gly Thr Cys Ser Ser Glu Ala Gln 4320 4325 4330	13070
ctg aaa gtc aca gcc aag aac acg gtg gtg cgg ggg ctg gag aat gtg Leu Lys Val Thr Ala Lys Asn Thr Val Val Arg Gly Leu Glu Asn Val 4335 4340 4345	13118
gag gcg ctg gag ggc ggc gag gcg ctg ttc gag tgc cag ctg tcc cag Glu Ala Leu Glu Gly Gly Glu Ala Leu Phe Glu Cys Gln Leu Ser Gln 4350 4355 4360 4365	13166
ccc gag gtg gcc gcc cac acc tgg ctg ctg gac gac gaa ccc gtg cgc Pro Glu Val Ala Ala His Thr Trp Leu Leu Asp Asp Glu Pro Val Arg 4370 4375 4380	13214
acc tcg gag aac gcc gag gtg gtc ttc ttc gag aac ggc ctg cgc cac Thr Ser Glu Asn Ala Glu Val Val Phe Phe Glu Asn Gly Leu Arg His 4385 4390 4395	13262
ctg ctg ctg ctc aaa aac ttg cgg cca caa gac agc tgc cgg gtg acc Leu Leu Leu Leu Lys Asn Leu Arg Pro Gln Asp Ser Cys Arg Val Thr 4400 4405 4410	13310
ttc ctg gct ggg gat atg gtg acg tcc gca ttc ctc acg gtc cga ggc Phe Leu Ala Gly Asp Met Val Thr Ser Ala Phe Leu Thr Val Arg Gly 4415 4420 4425	13358
tgg cgc ctg gag atc ctg gag cct ctg aaa aac gcg gcg gtc cgg gcc Trp Arg Leu Glu Ile Leu Glu Pro Leu Lys Asn Ala Ala Val Arg Ala 4430 4435 4440 4445	13406
ggc gca cag gca cgc ttc acc tgc acg ctc agc gag gcg gtg ccc gtg Gly Ala Gln Ala Arg Phe Thr Cys Thr Leu Ser Glu Ala Val Pro Val 4450 4455 4460	13454
gga gag gcg tcc tgg tac atc aat ggc gcg gca gtg cag ccg gat gac Gly Glu Ala Ser Trp Tyr Ile Asn Gly Ala Ala Val Gln Pro Asp Asp 4465 4470 4475	13502
agc gac tgg act gtc acc gcc gac ggc agt cac caa gcc cta ctg ctg Ser Asp Trp Thr Val Thr Ala Asp Gly Ser His Gln Ala Leu Leu Leu 4480 4485 4490	13550
cgc agc gcc cag ccc cac cac gcc ggg gag gtc acc ttc gct tgc cgc	13598

Arg Ser Ala Gln Pro His His Ala Gly Glu Val Thr Phe Ala Cys Arg  
 4495 4500 4505

gac gcc gtg gcc tct gca cgg ctc acc gtg ctg ggc ctc cct gat ccc 13646  
 Asp Ala Val Ala Ser Ala Arg Leu Thr Val Leu Gly Leu Pro Asp Pro  
 4510 4515 4520 4525

cca gag gat gct gag gtg gtg gct cac agc agc cac act gtg aca ctg 13694  
 Pro Glu Asp Ala Glu Val Val Ala His Ser Ser His Thr Val Thr Leu  
 4530 4535 4540

tct tgg gca gct ccc atg agt gat gga ggc ggt ggt ctc tgt ggc tac 13742  
 Ser Trp Ala Ala Pro Met Ser Asp Gly Gly Gly Gly Leu Cys Gly Tyr  
 4545 4550 4555

cgc gtg gag gtg aag gag ggg gcc aca ggc cag tgg cgg ctg tgc cac 13790  
 Arg Val Glu Val Lys Glu Gly Ala Thr Gly Gln Trp Arg Leu Cys His  
 4560 4565 4570

gag ctg gtg cct gga ccc gag tgt gtg gtg gat ggc ctg gcc ccc ggg 13838  
 Glu Leu Val Pro Gly Pro Glu Cys Val Val Asp Gly Leu Ala Pro Gly  
 4575 4580 4585

gag acc tac cgc ttc cgt gtg gca gct gtg ggc cct gtg ggt gct ggg 13886  
 Glu Thr Tyr Arg Phe Arg Val Ala Ala Val Gly Pro Val Gly Ala Gly  
 4590 4595 4600 4605

gaa ccg gtt cac ctg ccc cag aca gtg cgg ctt gca gag cca ccg aag 13934  
 Glu Pro Val His Leu Pro Gln Thr Val Arg Leu Ala Glu Pro Pro Lys  
 4610 4615 4620

cct gtg cct ccc cag ccc tca gcc cct gag agc cgg cag gtg gca gct 13982  
 Pro Val Pro Pro Gln Pro Ser Ala Pro Glu Ser Arg Gln Val Ala Ala  
 4625 4630 4635

ggt gaa gat gtc tct ctg gag ctt gag gtg gtg gct gag gct ggt gag 14030  
 Gly Glu Asp Val Ser Leu Glu Leu Glu Val Val Ala Glu Ala Gly Glu  
 4640 4645 4650

gtc atc tgg cac aag gga atg gag cgc atc cag ccc ggt ggg cgg ttc 14078  
 Val Ile Trp His Lys Gly Met Glu Arg Ile Gln Pro Gly Gly Arg Phe  
 4655 4660 4665

gag gtg gtc tcc cag ggt cgg caa cag atg ctg gtg atc aag ggc ttc 14126  
 Glu Val Val Ser Gln Gly Arg Gln Gln Met Leu Val Ile Lys Gly Phe  
 4670 4675 4680 4685

acg gca gaa gac cag ggc gag tac cac tgt ggc ctg gct cag ggc tcc 14174  
 Thr Ala Glu Asp Gln Gly Glu Tyr His Cys Gly Leu Ala Gln Gly Ser  
 4690 4695 4700

atc tgc cct gcg gct gcc acc ttc cag gtg gca ctg agc cca gcc tct 14222  
 Ile Cys Pro Ala Ala Ala Thr Phe Gln Val Ala Leu Ser Pro Ala Ser  
 4705 4710 4715

gtg gat gag gcc cct cag ccc agc ttg ccc ccc gag gca gcc cag gag 14270  
 Val Asp Glu Ala Pro Gln Pro Ser Leu Pro Pro Glu Ala Ala Gln Glu  
 4720 4725 4730

ggt gac ctg cac cta ctg tgg gag gcc ctg gct cgg aaa cgt cgc atg 14318  
 Gly Asp Leu His Leu Leu Trp Glu Ala Leu Ala Arg Lys Arg Arg Met

4735	4740	4745	
agc cgt gag ccc acg ctg gac tcc att agc gag ctg cca gag gag gac			14366
Ser Arg Glu Pro Thr Leu Asp Ser Ile Ser Glu Leu Pro Glu Glu Asp			
4750	4755	4760	4765
ggc cgc tcg cag cgc ctg cca cag gag gca gag gag gtg gca cct gat			14414
Gly Arg Ser Gln Arg Leu Pro Gln Glu Ala Glu Glu Val Ala Pro Asp			
4770	4775		4780
ctc tct gaa ggc tac tcc acg gcc gat gag ctg gcc cgc act gga gat			14462
Leu Ser Glu Gly Tyr Ser Thr Ala Asp Glu Leu Ala Arg Thr Gly Asp			
4785	4790		4795
gct gac ctc tca cac acc agc tct gat gat gag tcc cgg gca ggc acc			14510
Ala Asp Leu Ser His Thr Ser Ser Asp Asp Glu Ser Arg Ala Gly Thr			
4800	4805		4810
cct tcc ctg gtc acc tac ctc aag aag gct ggg agg cca ggc acc tca			14558
Pro Ser Leu Val Thr Tyr Leu Lys Lys Ala Gly Arg Pro Gly Thr Ser			
4815	4820		4825
cca ctg gcc agc aag gtt ggg gcc cca gca gcc ccc tct gtg aag cca			14606
Pro Leu Ala Ser Lys Val Gly Ala Pro Ala Ala Pro Ser Val Lys Pro			
4830	4835	4840	4845
cag cag cag cag gag cca ctg gct gct gtg cgc cca cca ctg gga gac			14654
Gln Gln Gln Gln Glu Pro Leu Ala Ala Val Arg Pro Pro Leu Gly Asp			
4850	4855		4860
ctg agc acc aaa gac ctg ggt gat ccc tca atg gac aag gca gct gtg			14702
Leu Ser Thr Lys Asp Leu Gly Asp Pro Ser Met Asp Lys Ala Ala Val			
4865	4870		4875
aag atc cag gct gcc ttt aag ggc tac aag gtc cgg aag gag atg aag			14750
Lys Ile Gln Ala Ala Phe Lys Gly Tyr Lys Val Arg Lys Glu Met Lys			
4880	4885		4890
cag cag gaa ggg ccc atg ttc tcc cac aca ttt ggg gac acc gag gca			14798
Gln Gln Glu Gly Pro Met Phe Ser His Thr Phe Gly Asp Thr Glu Ala			
4895	4900		4905
cag gtg ggg gat gcc ctg cgg ctg gag tgt gtc gtg gcc agc aag gca			14846
Gln Val Gly Asp Ala Leu Arg Leu Glu Cys Val Val Ala Ser Lys Ala			
4910	4915	4920	4925
gat gtg cga gcc cgc tgg ctg aag gat ggt gtg gag ctg acc gat ggg			14894
Asp Val Arg Ala Arg Trp Leu Lys Asp Gly Val Glu Leu Thr Asp Gly			
4930	4935		4940
cgg cac cat cac atc gac cag ctt ggg gat ggc acc tgc tct ctg ctg			14942
Arg His His His Ile Asp Gln Leu Gly Asp Gly Thr Cys Ser Leu Leu			
4945	4950		4955
atc gct ggc ctg gac cgt gct gat gct ggc tgc tac acc tgt cag gtg			14990
Ile Ala Gly Leu Asp Arg Ala Asp Ala Gly Cys Tyr Thr Cys Gln Val			
4960	4965		4970
agc aac aag ttt ggc cag gtg acc cac agt gcc tgt gtg gtg gtc agt			15038
Ser Asn Lys Phe Gly Gln Val Thr His Ser Ala Cys Val Val Val Ser			
4975	4980		4985





acg gag tcc tca tcc tac ttc agt gcc caa ggc tac ctg tcc agc cgg	15806
Thr Glu Ser Ser Ser Tyr Phe Ser Ala Gln Gly Tyr Leu Ser Ser Arg	
5230 5235 5240 5245	
 gag cag gag gga aca gag tcc acc act gat gag ggc cag ctg ccc cag	 15854
Glu Gln Glu Gly Thr Glu Ser Thr Thr Asp Glu Gly Gln Leu Pro Gln	
5250 5255 5260	
 gtg gtg gag gag ctg aga gac ctc cag gtg gcc cct ggc aca cgc ctg	 15902
Val Val Glu Glu Leu Arg Asp Leu Gln Val Ala Pro Gly Thr Arg Leu	
5265 5270 5275	
 gcc aag ttc cag ctc aag gtg aaa ggc tac cct gct ccc aga tta tac	 15950
Ala Lys Phe Gln Leu Lys Val Lys Gly Tyr Pro Ala Pro Arg Leu Tyr	
5280 5285 5290	
 tgg ttc aaa gat ggc cag ccc ctg acc gca tct gcc cac atc cgc atg	 15998
Trp Phe Lys Asp Gly Gln Pro Leu Thr Ala Ser Ala His Ile Arg Met	
5295 5300 5305	
 act ggc aag aag atc ctg cac acc ctg gag atc atc tcc gtc acc cgg	 16046
Thr Gly Lys Lys Ile Leu His Thr Leu Glu Ile Ile Ser Val Thr Arg	
5310 5315 5320 5325	
 gag gac tct ggc cag tat gca gcc tat atc agc aat gcc atg ggt gct	 16094
Glu Asp Ser Gly Gln Tyr Ala Ala Tyr Ile Ser Asn Ala Met Gly Ala	
5330 5335 5340	
 gcc tac tcg tct gcc cgg ctg ctg gtt cga ggc cct gat gag cca gaa	 16142
Ala Tyr Ser Ser Ala Arg Leu Leu Val Arg Gly Pro Asp Glu Pro Glu	
5345 5350 5355	
 gag aag cct gca tca gat gtg cat gag cag ctg gtg ccg ccc cga atg	 16190
Glu Lys Pro Ala Ser Asp Val His Glu Gln Leu Val Pro Pro Arg Met	
5360 5365 5370	
 ctg gag agg ttc acc ccc aag aaa gtg aag aaa ggc tcc agc atc acc	 16238
Leu Glu Arg Phe Thr Pro Lys Lys Val Lys Lys Gly Ser Ser Ile Thr	
5375 5380 5385	
 ttc tct gtg aag gta gaa gga cgc ccg gtg ccc acc gtg cac tgg ctc	 16286
Phe Ser Val Lys Val Glu Gly Arg Pro Val Pro Thr Val His Trp Leu	
5390 5395 5400 5405	
 agg gag gag gct gag aga ggc gtg ctg tgg att ggc cct gac aca ccg	 16334
Arg Glu Glu Ala Glu Arg Gly Val Leu Trp Ile Gly Pro Asp Thr Pro	
5410 5415 5420	
 ggc tac acc gtg gcc agc tct gcg cag cag cac agc ctg gtc ctg ctg	 16382
Gly Tyr Thr Val Ala Ser Ser Ala Gln Gln His Ser Leu Val Leu Leu	
5425 5430 5435	
 gac gtg ggc cgg cag cac cag ggc acc tac aca tgc att gcc agc aac	 16430
Asp Val Gly Arg Gln His Gln Gly Thr Tyr Thr Cys Ile Ala Ser Asn	
5440 5445 5450	
 gct gcc ggc cag gcc ctc tgc tcc gcc agc ctg cac gtc tcg ggc ctg	 16478
Ala Ala Gly Gln Ala Leu Cys Ser Ala Ser Leu His Val Ser Gly Leu	
5455 5460 5465	
 cct aag gtg gag gag cag gag aaa gtg aag gaa gcg ctg att tcc act	 16526

Pro Lys Val Glu Glu Gln Glu Lys Val Lys Glu Ala Leu Ile Ser Thr	
5470	5485
ttc ctg cag ggg acc aca caa gcc atc tca gca cag ggg ttg gaa act	16574
Phe Leu Gln Gly Thr Thr Gln Ala Ile Ser Ala Gln Gly Leu Glu Thr	
5490	5500
gcg agt ttt gct gac ctt ggt ggg cag agg aaa gaa gag cct ctg gct	16622
Ala Ser Phe Ala Asp Leu Gly Gly Gln Arg Lys Glu Glu Pro Leu Ala	
5505	5515
gcc aag gag gcc ctc ggc cac ctg tcc ctc gct gag gtg ggc aca gag	16670
Ala Lys Glu Ala Leu Gly His Leu Ser Leu Ala Glu Val Gly Thr Glu	
5520	5530
gag ttc ctg cag aaa ctg acc tcc cag atc act gag atg gta tcg gcc	16718
Glu Phe Leu Gln Lys Leu Thr Ser Gln Ile Thr Glu Met Val Ser Ala	
5535	5545
aag atc acg cag gcc aag ctg cag gtg ccc gga ggt gac agt gat gag	16766
Lys Ile Thr Gln Ala Lys Leu Gln Val Pro Gly Gly Asp Ser Asp Glu	
5550	5565
gac tcc aag aca cca tct gca tcc ccc cgc cat ggc cga tca cgg cca	16814
Asp Ser Lys Thr Pro Ser Ala Ser Pro Arg His Gly Arg Ser Arg Pro	
5570	5580
tcc tcc agc atc cag gag tct tcc tca gag tca gag gac ggc gat gcc	16862
Ser Ser Ser Ile Gln Glu Ser Ser Ser Glu Ser Glu Asp Gly Asp Ala	
5585	5595
cga ggc gag atc ttt gac atc tac gtg gtc acc gct gac tac ctg ccc	16910
Arg Gly Glu Ile Phe Asp Ile Tyr Val Val Thr Ala Asp Tyr Leu Pro	
5600	5610
cta ggg gct gag cag gat gcc atc acg ctg cgg gaa ggc cag tat gtg	16958
Leu Gly Ala Glu Gln Asp Ala Ile Thr Leu Arg Glu Gly Gln Tyr Val	
5615	5625
gag gtc ctg gat gca gcc cac cca ctg cgc tgg ctt gtc cgc acc aag	17006
Glu Val Leu Asp Ala Ala His Pro Leu Arg Trp Leu Val Arg Thr Lys	
5630	5645
ccc acc aag tcc agc ccc tca cgg cag ggc tgg gtg tca cca gcc tac	17054
Pro Thr Lys Ser Ser Pro Ser Arg Gln Gly Trp Val Ser Pro Ala Tyr	
5650	5660
ctg gac agg agg ctc aag ctg tca cct gag tgg ggg gcc gct gag gcc	17102
Leu Asp Arg Arg Leu Lys Leu Ser Pro Glu Trp Gly Ala Ala Glu Ala	
5665	5675
cct gag ttc cct ggg gag gct gtg tct gaa gac gaa tac aag gca agg	17150
Pro Glu Phe Pro Gly Glu Ala Val Ser Glu Asp Glu Tyr Lys Ala Arg	
5680	5690
ctg agc tct gtg atc cag gag ctg ctg agt tct gag cag gcc ttc gtg	17198
Leu Ser Ser Val Ile Gln Glu Leu Leu Ser Ser Glu Gln Ala Phe Val	
5695	5705
gag gag ctg cag ttc ctg cag agc cac cac ctg cag cac ctg gag cgc	17246
Glu Glu Leu Gln Phe Leu Gln Ser His His Leu Gln His Leu Glu Arg	

5710	5715	5720	5725	
tgc ccc cac gtg ccc ata gcc gtg gcc ggc cag aag gca gtc atc ttc				17294
Cys Pro His Val Pro Ile Ala Val Ala Gly Gln Lys Ala Val Ile Phe	5730	5735	5740	
cgc aat gtg cgg gac atc ggc cgc ttc cac agc agc ttc ctg cag gag				17342
Arg Asn Val Arg Asp Ile Gly Arg Phe His Ser Ser Phe Leu Gln Glu	5745	5750	5755	
ttg cag cag tgc gac acg gac gac gac gtg gcc atg tgc ttc atc aag				17390
Leu Gln Gln Cys Asp Thr Asp Asp Asp Val Ala Met Cys Phe Ile Lys	5760	5765	5770	
aac cag gcg gcc ttt gag cag tac ctg gag ttc ctg gtg ggg cgt gtg				17438
Asn Gln Ala Ala Phe Glu Gln Tyr Leu Glu Phe Leu Val Gly Arg Val	5775	5780	5785	
cag gct gag tcg gtg gtc gtc agc acg gcc atc cag gag ttc tac aag				17486
Gln Ala Glu Ser Val Val Val Ser Thr Ala Ile Gln Glu Phe Tyr Lys	5790	5795	5800	5805
aaa tac gcg gag gag gcc ctg ttg gca ggg gac ccc tct cag ccc ccg				17534
Lys Tyr Ala Glu Glu Ala Leu Leu Ala Gly Asp Pro Ser Gln Pro Pro	5810	5815	5820	
cca cca cct ctg cag cac tac ctg gag cag cca gtg gag cgg gtg cag				17582
Pro Pro Pro Leu Gln His Tyr Leu Glu Gln Pro Val Glu Arg Val Gln	5825	5830	5835	
cgc tac cag gcc ttg ctg aag gag ttg atc cgc aac aag gcg cgg aac				17630
Arg Tyr Gln Ala Leu Leu Lys Glu Leu Ile Arg Asn Lys Ala Arg Asn	5840	5845	5850	
aga cag aac tgc gcg ctg ctg gag cag gcc tat gcc gtg gtg tct gcc				17678
Arg Gln Asn Cys Ala Leu Leu Glu Gln Ala Tyr Ala Val Val Ser Ala	5855	5860	5865	
ctg cca cag cgc gct gag aac aag ctg cac gtg tcc ctc atg gag aac				17726
Leu Pro Gln Arg Ala Glu Asn Lys Leu His Val Ser Leu Met Glu Asn	5870	5875	5880	5885
tac cca ggc acc ctg gag gcc ctg ggc gag ccc atc cgc cag ggc cac				17774
Tyr Pro Gly Thr Leu Glu Ala Leu Gly Glu Pro Ile Arg Gln Gly His	5890	5895	5900	
ttc atc gtg tgg gag ggt gca ccg ggg gcc cgc atg ccc tgg aag ggc				17822
Phe Ile Val Trp Glu Gly Ala Pro Gly Ala Arg Met Pro Trp Lys Gly	5905	5910	5915	
cac aac cgt cac gtg ttc ctc ttc cgc aac cac ctg gta atc tgc aag				17870
His Asn Arg His Val Phe Leu Phe Arg Asn His Leu Val Ile Cys Lys	5920	5925	5930	
ccc cgg cga gac tcc cgc acc gat acc gtc agc tac gtg ttc cgg aac				17918
Pro Arg Arg Asp Ser Arg Thr Asp Thr Val Ser Tyr Val Phe Arg Asn	5935	5940	5945	
atg atg aag ctg agc agc atc gac ctg aac gac cag gtg gag ggg gat				17966
Met Met Lys Leu Ser Ser Ile Asp Leu Asn Asp Gln Val Glu Gly Asp	5950	5955	5960	5965

gac cgc gcc ttc gag gtg tgg cag gag cgg gag gac tcg gtg cgc aag Asp Arg Ala Phe Glu Val Trp Gln Glu Arg Glu Asp Ser Val Arg Lys 5970 5975 5980	18014
tac ctg ctg cag gca cgg aca gcc att atc aag agc tcg tgg gtg aag Tyr Leu Leu Gln Ala Arg Thr Ala Ile Ile Lys Ser Ser Trp Val Lys 5985 5990 5995	18062
gag atc tgt ggc atc cag cag cgt ctg gcc ctg cct gtg tgg cgg ccc Glu Ile Cys Gly Ile Gln Gln Arg Leu Ala Leu Pro Val Trp Arg Pro 6000 6005 6010	18110
ccg gac ttt gaa gag gag ctg gcc gac tgc aca gcc gag ctg ggt gag Pro Asp Phe Glu Glu Glu Leu Ala Asp Cys Thr Ala Glu Leu Gly Glu 6015 6020 6025	18158
aca gtc aag ctg gcc tgc cgc gtg acg ggc aca ccc aag cct gtc atc Thr Val Lys Leu Ala Cys Arg Val Thr Gly Thr Pro Lys Pro Val Ile 6030 6035 6040 6045	18206
agc tgg tac aaa gat ggg aaa gca gtg cag gtg gac ccc cac cac atc Ser Trp Tyr Lys Asp Gly Lys Ala Val Gln Val Asp Pro His His Ile 6050 6055 6060	18254
ctc att gaa gac cct gat ggc tgc tgt gca ctc atc ctg gac agc ctg Leu Ile Glu Asp Pro Asp Gly Ser Cys Ala Leu Ile Leu Asp Ser Leu 6065 6070 6075	18302
acc ggt gtg gac tct ggc cag tac atg tgc ttc gcg gcc agc gcc gct Thr Gly Val Asp Ser Gly Gln Tyr Met Cys Phe Ala Ala Ser Ala Ala 6080 6085 6090	18350
ggc aac tgc agt acc ctg ggc aag atc ctg gtg caa gtc cca cca cgg Gly Asn Cys Ser Thr Leu Gly Lys Ile Leu Val Gln Val Pro Pro Arg 6095 6100 6105	18398
ttc gtg aac aag gtc cgg gcc tca ccc ttt gtg gag gga gag gac gcc Phe Val Asn Lys Val Arg Ala Ser Pro Phe Val Glu Gly Glu Asp Ala 6110 6115 6120 6125	18446
cag ttc acc tgc acc atc gaa ggc gcc ccg tac ccg cag atc agg tgg Gln Phe Thr Cys Thr Ile Glu Gly Ala Pro Tyr Pro Gln Ile Arg Trp 6130 6135 6140	18494
tac aag gac ggg gcc ctg ctg acc act ggc aac aag ttc cag aca ctg Tyr Lys Asp Gly Ala Leu Leu Thr Thr Gly Asn Lys Phe Gln Thr Leu 6145 6150 6155	18542
agt gag cct cgc agc ggc ctg cta gtg ctg gtg atc cgg gcg gcc agc Ser Glu Pro Arg Ser Gly Leu Leu Val Leu Val Ile Arg Ala Ala Ser 6160 6165 6170	18590
aag gag gac ctg ggg ctc tac gag tgt gag ctg gtg aac cgg ctg ggc Lys Glu Asp Leu Gly Leu Tyr Glu Cys Glu Leu Val Asn Arg Leu Gly 6175 6180 6185	18638
tcc gcg cgg gct agt gcg gag ctg cgc att cag agc ccc atg ctg cag Ser Ala Arg Ala Ser Ala Glu Leu Arg Ile Gln Ser Pro Met Leu Gln 6190 6195 6200 6205	18686

gcc cag gag cag tgt cac agg gag cag ctc gtg gct gca gtg gaa gac Ala Gln Glu Gln Cys His Arg Glu Gln Leu Val Ala Ala Val Glu Asp 6210 6215 6220	18734
acc acc ctg gag cga gcg gac cag gag gtc aca tct gtc ctg aag aga Thr Thr Leu Glu Arg Ala Asp Gln Glu Val Thr Ser Val Leu Lys Arg 6225 6230 6235	18782
ctg ctg ggc ccc aag gcg cca ggc ccc tcc aca ggg gac ctc act ggc Leu Leu Gly Pro Lys Ala Pro Gly Pro Ser Thr Gly Asp Leu Thr Gly 6240 6245 6250	18830
cct ggc ccc tgc ccc agg ggg gca ccc gca ctc cag gaa acc ggc tcc Pro Gly Pro Cys Pro Arg Gly Ala Pro Ala Leu Gln Glu Thr Gly Ser 6255 6260 6265	18878
cag ccc cca gtc acc gga act tcg gag gca cct gcc gtg ccc ccg agg Gln Pro Pro Val Thr Gly Thr Ser Glu Ala Pro Ala Val Pro Pro Arg 6270 6275 6280 6285	18926
gtg cca cag ccc ctc ctc cac gaa ggc cca gag cag gag ccg gag gcc Val Pro Gln Pro Leu Leu His Glu Gly Pro Glu Gln Glu Pro Glu Ala 6290 6295 6300	18974
att gcc aga gcc cag gaa tgg act gtg ccc att cgg atg gag ggt gca Ile Ala Arg Ala Gln Glu Trp Thr Val Pro Ile Arg Met Glu Gly Ala 6305 6310 6315	19022
gcc tgg ccc ggg gca ggc aca ggg gag ctg ctc tgg gac gtc cac agc Ala Trp Pro Gly Ala Gly Thr Gly Glu Leu Leu Trp Asp Val His Ser 6320 6325 6330	19070
cac gtg gtc aga gag acc aca cag agg acc tac aca tac cag gcc atc His Val Val Arg Glu Thr Thr Gln Arg Thr Tyr Thr Tyr Gln Ala Ile 6335 6340 6345	19118
gac acg cac acc gca cgg ccc cca tcc atg cag gta acc atc gag gat Asp Thr His Thr Ala Arg Pro Pro Ser Met Gln Val Thr Ile Glu Asp 6350 6355 6360 6365	19166
gtg cag gca cag aca ggc gga acg gcc caa ttc gag gct atc att gag Val Gln Ala Gln Thr Gly Gly Thr Ala Gln Phe Glu Ala Ile Ile Glu 6370 6375 6380	19214
ggc gac cca cag ccc tcg gtg acc tgg tac aag gac agc gtc cag ctg Gly Asp Pro Gln Pro Ser Val Thr Trp Tyr Lys Asp Ser Val Gln Leu 6385 6390 6395	19262
gtg gac agc acc cgg ctt agc cag cag caa gaa ggc acc aca tac tcc Val Asp Ser Thr Arg Leu Ser Gln Gln Gln Glu Gly Thr Thr Tyr Ser 6400 6405 6410	19310
ctg gtg ctg agg cat gtg gcc tcg aag gat gcc ggc gtt tac acc tgc Leu Val Leu Arg His Val Ala Ser Lys Asp Ala Gly Val Tyr Thr Cys 6415 6420 6425	19358
ctg gcc caa aac act ggt ggc cag gtg ctc tgc aag gca gag ctg ctg Leu Ala Gln Asn Thr Gly Gly Gln Val Leu Cys Lys Ala Glu Leu Leu 6430 6435 6440 6445	19406
gtg ctt ggg ggg gac aat gag ccg gac tca gag aag caa agc cac cgg	19454

Val Leu Gly Gly Asp Asn Glu Pro Asp Ser Glu Lys Gln Ser His Arg	
6450 6455 6460	
agg aag ctg cac tcc ttc tat gag gtc aag gag gag att gga agg ggc	19502
Arg Lys Leu His Ser Phe Tyr Glu Val Lys Glu Glu Ile Gly Arg Gly	
6465 6470 6475	
gtg ttt ggc ttc gta aaa aga gtg cag cac aaa gga aac aag atc ttg	19550
Val Phe Gly Phe Val Lys Arg Val Gln His Lys Gly Asn Lys Ile Leu	
6480 6485 6490	
tgc gct gcc aag ttc atc ccc cta cgg agc aga act cgg gcc cag gca	19598
Cys Ala Ala Lys Phe Ile Pro Leu Arg Ser Arg Thr Arg Ala Gln Ala	
6495 6500 6505	
tac agg gag cga gac atc ctg gcc gcg ctg agc cac ccg ctg gtc acg	19646
Tyr Arg Glu Arg Asp Ile Leu Ala Ala Leu Ser His Pro Leu Val Thr	
6510 6515 6520 6525	
ggg ctg ctg gac cag ttt gag acc cgc aag acc ctc atc ctc atc ctg	19694
Gly Leu Leu Asp Gln Phe Glu Thr Arg Lys Thr Leu Ile Leu Ile Leu	
6530 6535 6540	
gag ctg tgc tca tcc gag gag ctg ctg gac cgc ctg tac agg aag ggc	19742
Glu Leu Cys Ser Ser Glu Glu Leu Leu Asp Arg Leu Tyr Arg Lys Gly	
6545 6550 6555	
gtg gtg acg gag gcc gag gtc aag gtc tac atc cag cag ctg gtg gag	19790
Val Val Thr Glu Ala Glu Val Lys Val Tyr Ile Gln Gln Leu Val Glu	
6560 6565 6570	
ggg ctg cac tac ctg cac agc cat ggc gtt ctc cac ctg gac ata aag	19838
Gly Leu His Tyr Leu His Ser His Gly Val Leu His Leu Asp Ile Lys	
6575 6580 6585	
ccc tct aac atc ctg atg gtg cat cct gcc cgg gaa gac att aaa atc	19886
Pro Ser Asn Ile Leu Met Val His Pro Ala Arg Glu Asp Ile Lys Ile	
6590 6595 6600 6605	
tgc gac ttt ggc ttt gcc cag aac atc acc cca gca gag ctg cag ttc	19934
Cys Asp Phe Gly Phe Ala Gln Asn Ile Thr Pro Ala Glu Leu Gln Phe	
6610 6615 6620	
agc cag tac ggc tcc cct gag ttc gtc tcc ccc gag atc atc cag cag	19982
Ser Gln Tyr Gly Ser Pro Glu Phe Val Ser Pro Glu Ile Ile Gln Gln	
6625 6630 6635	
aac cct gtg agc gaa gcc tcc gac att tgg gcc atg ggt gtc atc tcc	20030
Asn Pro Val Ser Glu Ala Ser Asp Ile Trp Ala Met Gly Val Ile Ser	
6640 6645 6650	
tac ctc agc ctg acc tgc tca tcc cca ttt gcc ggc gag agt gac cgt	20078
Tyr Leu Ser Leu Thr Cys Ser Ser Pro Phe Ala Gly Glu Ser Asp Arg	
6655 6660 6665	
gcc acc ctc ctg aac gtc ctg gag ggg cgc gtg tca tgg agc agc ccc	20126
Ala Thr Leu Leu Asn Val Leu Glu Gly Arg Val Ser Trp Ser Ser Pro	
6670 6675 6680 6685	
atg gct gcc cac ctc agc gaa gac gcc aaa gac ttc atc aag gct acg	20174
Met Ala Ala His Leu Ser Glu Asp Ala Lys Asp Phe Ile Lys Ala Thr	

6690	6695	6700	
ctg cag aga gcc cct cag gcc cgg cct agt gcg gcc cag tgc ctc tcc			20222
Leu Gln Arg Ala Pro Gln Ala Arg Pro Ser Ala Ala Gln Cys Leu Ser			
6705	6710	6715	
cac ccc tgg ttc ctg aaa tcc atg cct gcg gag gag gcc cac ttc atc			20270
His Pro Trp Phe Leu Lys Ser Met Pro Ala Glu Glu Ala His Phe Ile			
6720	6725	6730	
aac acc aag cag ctc aag ttc ctc ctg gcc cga agt cgc tgg cag cgt			20318
Asn Thr Lys Gln Leu Lys Phe Leu Leu Ala Arg Ser Arg Trp Gln Arg			
6735	6740	6745	
tcc ctg atg agc tac aag tcc atc ctg gtg atg cgc tcc atc cct gag			20366
Ser Leu Met Ser Tyr Lys Ser Ile Leu Val Met Arg Ser Ile Pro Glu			
6750	6755	6760	6765
ctg ctg cgg ggc cca ccc gac agc ccc tcc ctc ggc gta gcc cgg cac			20414
Leu Leu Arg Gly Pro Pro Asp Ser Pro Ser Leu Gly Val Ala Arg His			
6770	6775	6780	
ctc tgc agg gac act ggt ggc tcc tcc agt tcc tcc tcc tcc tct gac			20462
Leu Cys Arg Asp Thr Gly Gly Ser Ser Ser Ser Ser Ser Ser Asp			
6785	6790	6795	
aac gag ctc gcc cca ttt gcc cgg gct aag tca ctg cca ccc tcc ccg			20510
Asn Glu Leu Ala Pro Phe Ala Arg Ala Lys Ser Leu Pro Pro Ser Pro			
6800	6805	6810	
gtg aca cac tca cca ctg ctg cac ccc cgg ggc ttc ctg cgg ccc tcg			20558
Val Thr His Ser Pro Leu Leu His Pro Arg Gly Phe Leu Arg Pro Ser			
6815	6820	6825	
gcc agc ctg cct gag gaa gcc gag gcc agt gag cgc tcc acc gag gcc			20606
Ala Ser Leu Pro Glu Glu Ala Glu Ala Ser Glu Arg Ser Thr Glu Ala			
6830	6835	6840	6845
cca gct ccg cct gca tct ccc gag ggt gcc ggg cca ccg gcc gcc cag			20654
Pro Ala Pro Pro Ala Ser Pro Glu Gly Ala Gly Pro Pro Ala Ala Gln			
6850	6855	6860	
ggc tgc gtg ccc cgg cac agc gtc atc cgc agc ctg ttc tac cac cag			20702
Gly Cys Val Pro Arg His Ser Val Ile Arg Ser Leu Phe Tyr His Gln			
6865	6870	6875	
gcg ggt gag agc cct gag cac ggg gcc ctg gcc ccg ggg agc agg cgg			20750
Ala Gly Glu Ser Pro Glu His Gly Ala Leu Ala Pro Gly Ser Arg Arg			
6880	6885	6890	
cac ccg gcc cgg cgg cgg cac ctg ctg aag ggc ggg tac att gcg ggg			20798
His Pro Ala Arg Arg Arg His Leu Leu Lys Gly Gly Tyr Ile Ala Gly			
6895	6900	6905	
gcg ctg cca ggc ctg cgc gag cca ctg atg gag cac cgc gtg ctg gag			20846
Ala Leu Pro Gly Leu Arg Glu Pro Leu Met Glu His Arg Val Leu Glu			
6910	6915	6920	6925
gag gag gcc gcc agg gag gag cag gcc acc ctc ctg gcc aaa gcc ccc			20894
Glu Glu Ala Ala Arg Glu Glu Gln Ala Thr Leu Leu Ala Lys Ala Pro			
6930	6935	6940	



tca ttc gag act gcc ctc cgg ctg cct gcc tct ggc acc cac ttg gcc	20942
Ser Phe Glu Thr Ala Leu Arg Leu Pro Ala Ser Gly Thr His Leu Ala	
6945 6950 6955	
cct ggc cac agc cac tcc ctg gaa cat gac tct ccg agc acc ccc cgc	20990
Pro Gly His Ser His Ser Leu Glu His Asp Ser Pro Ser Thr Pro Arg	
6960 6965 6970	
ccc tcc tcg gag gcc tgc ggt gag gca cag cga ctg cct tca gcc ccc	21038
Pro Ser Ser Glu Ala Cys Gly Glu Ala Gln Arg Leu Pro Ser Ala Pro	
6975 6980 6985	
tcc ggg ggg gcc cct atc agg gac atg ggg cac cct cag ggc tcc aag	21086
Ser Gly Gly Ala Pro Ile Arg Asp Met Gly His Pro Gln Gly Ser Lys	
6990 6995 7000 7005	
cag ctt cca tcc act ggt ggc cac cca ggc act gct cag cca gag agg	21134
Gln Leu Pro Ser Thr Gly Gly His Pro Gly Thr Ala Gln Pro Glu Arg	
7010 7015 7020	
cca tcc ccg gac agc cct tgg ggg cag cca gcc cct ttc tgc cac ccc	21182
Pro Ser Pro Asp Ser Pro Trp Gly Gln Pro Ala Pro Phe Cys His Pro	
7025 7030 7035	
aag cag ggt tct gcc ccc cag gag ggc tgc agc ccc cac cca gca gtt	21230
Lys Gln Gly Ser Ala Pro Gln Glu Gly Cys Ser Pro His Pro Ala Val	
7040 7045 7050	
gcc cca tgc cct cct ggc tcc ttc cct cca gga tct tgc aaa gag gcc	21278
Ala Pro Cys Pro Pro Gly Ser Phe Pro Pro Gly Ser Cys Lys Glu Ala	
7055 7060 7065	
ccc tta gta ccc tca agc ccc ttc ttg gga cag ccc cag gca ccc cct	21326
Pro Leu Val Pro Ser Ser Pro Phe Leu Gly Gln Pro Gln Ala Pro Pro	
7070 7075 7080 7085	
gcc cct gcc aaa gca agc ccc cca ttg gac tct aag atg ggg cct gga	21374
Ala Pro Ala Lys Ala Ser Pro Pro Leu Asp Ser Lys Met Gly Pro Gly	
7090 7095 7100	
gac atc tct ctt cct ggg agg cca aaa ccc ggc ccc tgc agt tcc cca	21422
Asp Ile Ser Leu Pro Gly Arg Pro Lys Pro Gly Pro Cys Ser Ser Pro	
7105 7110 7115	
ggg tca gcc tcc cag gcg agc tct tcc caa gtg agc tcc ctc agg gtg	21470
Gly Ser Ala Ser Gln Ala Ser Ser Ser Gln Val Ser Ser Leu Arg Val	
7120 7125 7130	
ggc tcc tcc cag gtg ggc aca gag cct ggc ccc tcc ctg gat gcg gag	21518
Gly Ser Ser Gln Val Gly Thr Glu Pro Gly Pro Ser Leu Asp Ala Glu	
7135 7140 7145	
ggc tgg acc cag gag gct gag gat ctg tcc gac tcc aca ccc acc ttg	21566
Gly Trp Thr Gln Glu Ala Glu Asp Leu Ser Asp Ser Thr Pro Thr Leu	
7150 7155 7160 7165	
cag cgg cct cag gaa cag gcg acc atg cgc aag ttc tcc ctg ggt ggt	21614
Gln Arg Pro Gln Glu Gln Ala Thr Met Arg Lys Phe Ser Leu Gly Gly	
7170 7175 7180	

cgc ggg ggc tac gca ggc gtg gct ggc tat ggc acc ttt gcc ttt ggt Arg Gly Gly Tyr Ala Gly Val Ala Gly Tyr Gly Thr Phe Ala Phe Gly 7185 7190 7195	21662
gga gat gca ggg ggc atg ctg ggg cag ggg ccc atg tgg gcc agg ata Gly Asp Ala Gly Gly Met Leu Gly Gln Gly Pro Met Trp Ala Arg Ile 7200 7205 7210	21710
gcc tgg gct gtg tcc cag tcg gag gag gag gag cag gag gag gcc agg Ala Trp Ala Val Ser Gln Ser Glu Glu Glu Glu Gln Glu Glu Ala Arg 7215 7220 7225	21758
gct gag tcc cag tcg gag gag cag cag gag gcc agg gct gag agc cca Ala Glu Ser Gln Ser Glu Glu Gln Gln Glu Ala Arg Ala Glu Ser Pro 7230 7235 7240 7245	21806
ctg ccc cag gtc agt gca agg cct gtg cct gag gtc ggc agg gct ccc Leu Pro Gln Val Ser Ala Arg Pro Val Pro Glu Val Gly Arg Ala Pro 7250 7255 7260	21854
acc agg agc tct cca gag ccc acc cca tgg gag gac atc ggg cag gtc Thr Arg Ser Ser Pro Glu Pro Thr Pro Trp Glu Asp Ile Gly Gln Val 7265 7270 7275	21902
tcc ctg gtg cag atc cgg gac ctg tca ggt gat gcg gag gcg gcc gac Ser Leu Val Gln Ile Arg Asp Leu Ser Gly Asp Ala Glu Ala Ala Asp 7280 7285 7290	21950
aca ata tcc ctg gac att tcc gag gtg gac ccc gcc tac ctc aac ctc Thr Ile Ser Leu Asp Ile Ser Glu Val Asp Pro Ala Tyr Leu Asn Leu 7295 7300 7305	21998
tca gac ctg tac gat atc aag tac ctc cca ttc gag ttt atg atc ttc Ser Asp Leu Tyr Asp Ile Lys Tyr Leu Pro Phe Glu Phe Met Ile Phe 7310 7315 7320 7325	22046
agg aaa gtc ccc aag tcc gct cag cca gag ccg ccc tcc ccc atg gct Arg Lys Val Pro Lys Ser Ala Gln Pro Glu Pro Pro Ser Pro Met Ala 7330 7335 7340	22094
gag gag gag ctg gcc gag ttc ccg gag ccc acg tgg ccc tgg cca ggt Glu Glu Glu Leu Ala Glu Phe Pro Glu Pro Thr Trp Pro Trp Pro Gly 7345 7350 7355	22142
gaa ctg ggc ccc cac gca ggc ctg gag atc aca gag gag tca gag gat Glu Leu Gly Pro His Ala Gly Leu Glu Ile Thr Glu Glu Ser Glu Asp 7360 7365 7370	22190
gtg gac gcg ctg ctg gca gag gct gcc gtg ggc agg aag cgc aag tgg Val Asp Ala Leu Leu Ala Glu Ala Ala Val Gly Arg Lys Arg Lys Trp 7375 7380 7385	22238
tcc tcg ccg tca cgc agc ctc ttc cac ttc cct ggg agg cac ctg ccg Ser Ser Pro Ser Arg Ser Leu Phe His Phe Pro Gly Arg His Leu Pro 7390 7395 7400 7405	22286
ctg gat gag cct gca gag ctg ggg ctg cgt gag aga gtg aag gcc tcc Leu Asp Glu Pro Ala Glu Leu Gly Leu Arg Glu Arg Val Lys Ala Ser 7410 7415 7420	22334
gtg gag cac atc tcc cgg atc ctg aag ggc agg ccg gaa ggt ctg gag	22382

Val Glu His Ile Ser Arg Ile Leu Lys Gly Arg Pro Glu Gly Leu Glu	
7425	7430 7435
aag gag ggg ccc ccc agg aag aag cca ggc ctt gct tcc ttc cgg ctc	22430
Lys Glu Gly Pro Pro Arg Lys Lys Pro Gly Leu Ala Ser Phe Arg Leu	
7440	7445 7450
tca ggt ctg aag agc tgg gac cga gcg ccg aca ttc cta agg gag ctc	22478
Ser Gly Leu Lys Ser Trp Asp Arg Ala Pro Thr Phe Leu Arg Glu Leu	
7455	7460 7465
tca gat gag act gtg gtc ctg ggc cag tca gtg aca ctg gcc tgc cag	22526
Ser Asp Glu Thr Val Val Leu Gly Gln Ser Val Thr Leu Ala Cys Gln	
7470	7475 7480 7485
gtg tca gcc cag cca gct gcc cag gcc acc tgg agc aaa gac gga gcc	22574
Val Ser Ala Gln Pro Ala Ala Gln Ala Thr Trp Ser Lys Asp Gly Ala	
7490	7495 7500
ccc ctg gag agc agc agc cgt gtc ctc atc tct gcc acc ctc aag aac	22622
Pro Leu Glu Ser Ser Ser Arg Val Leu Ile Ser Ala Thr Leu Lys Asn	
7505	7510 7515
ttc cag ctt ctg acc atc ctg gtg gtg gtg gct gag gac ctg ggt gtg	22670
Phe Gln Leu Leu Thr Ile Leu Val Val Val Ala Glu Asp Leu Gly Val	
7520	7525 7530
tac acc tgc agc gtg agc aat gcg ctg ggg aca gtg acc acc acg ggc	22718
Tyr Thr Cys Ser Val Ser Asn Ala Leu Gly Thr Val Thr Thr Thr Gly	
7535	7540 7545
gtc ctc cgg aag gca gag cgc ccc tca tct tcg cca tgc ccg gat atc	22766
Val Leu Arg Lys Ala Glu Arg Pro Ser Ser Ser Pro Cys Pro Asp Ile	
7550	7555 7560 7565
ggg gag gtg tac gcg gat ggg gtg ctg ctg gtc tgg aag ccc gtg gaa	22814
Gly Glu Val Tyr Ala Asp Gly Val Leu Leu Val Trp Lys Pro Val Glu	
7570	7575 7580
tcc tac ggc cct gtg acc tac att gtg cag tgc agc cta gaa ggc ggc	22862
Ser Tyr Gly Pro Val Thr Tyr Ile Val Gln Cys Ser Leu Glu Gly Gly	
7585	7590 7595
agc tgg acc aca ctg gcc tcc gac atc ttt gac tgc tgc tac ctg acc	22910
Ser Trp Thr Thr Leu Ala Ser Asp Ile Phe Asp Cys Cys Tyr Leu Thr	
7600	7605 7610
agc aag ctc tcc cgg ggt ggc acc tac acc ttc cgc acg gca tgt gtc	22958
Ser Lys Leu Ser Arg Gly Gly Thr Tyr Thr Phe Arg Thr Ala Cys Val	
7615	7620 7625
agc aag gca gga atg ggt ccc tac agc agc ccc tcg gag caa gtc ctc	23006
Ser Lys Ala Gly Met Gly Pro Tyr Ser Ser Pro Ser Glu Gln Val Leu	
7630	7635 7640 7645
ctg gga ggg ccc agc cac ctg gcc tct gag gag gag agc cag ggg cgg	23054
Leu Gly Gly Pro Ser His Leu Ala Ser Glu Glu Glu Ser Gln Gly Arg	
7650	7655 7660
tca gcc caa ccc ctg ccc agc aca aag acc ttc gca ttc cag aca cag	23102
Ser Ala Gln Pro Leu Pro Ser Thr Lys Thr Phe Ala Phe Gln Thr Gln	

7665	7670	7675	
atc cag agg ggc cgc ttc agc gtg gtg cgg caa tgc tgg gag aag gcc Ile Gln Arg Gly Arg Phe Ser Val Val Arg Gln Cys Trp Glu Lys Ala 7680 7685 7690			23150
agc ggg cgg gcg ctg gcc gcc aag atc atc ccc tac cac ccc aag gac Ser Gly Arg Ala Leu Ala Ala Lys Ile Ile Pro Tyr His Pro Lys Asp 7695 7700 7705			23198
aag aca gca gtg ctg cgc gaa tac gag gcc ctc aag ggc ctg cgc cac Lys Thr Ala Val Leu Arg Glu Tyr Glu Ala Leu Lys Gly Leu Arg His 7710 7715 7720 7725			23246
ccg cac ctg gcc cag ctg cac gca gcc tac ctc agc ccc cgg cac ctg Pro His Leu Ala Gln Leu His Ala Ala Tyr Leu Ser Pro Arg His Leu 7730 7735 7740			23294
gtg ctc atc ttg gag ctg tgc tct ggg ccc gag ctg ctc ccc tgc ctg Val Leu Ile Leu Glu Leu Cys Ser Gly Pro Glu Leu Leu Pro Cys Leu 7745 7750 7755			23342
gcc gag agg gcc tcc tac tca gaa tcc gag gtg aag gac tac ctg tgg Ala Glu Arg Ala Ser Tyr Ser Glu Ser Glu Val Lys Asp Tyr Leu Trp 7760 7765 7770			23390
cag atg ttg agt gcc acc cag tac ctg cac aac cag cac atc ctg cac Gln Met Leu Ser Ala Thr Gln Tyr Leu His Asn Gln His Ile Leu His 7775 7780 7785			23438
ctg gac ctg agg tcc gag aac atg atc atc acc gaa tac aac ctg ctc Leu Asp Leu Arg Ser Glu Asn Met Ile Ile Thr Glu Tyr Asn Leu Leu 7790 7795 7800 7805			23486
aag gtc gtg gac ctg ggc aat gca cag agc ctc agc cag gag aag gtg Lys Val Val Asp Leu Gly Asn Ala Gln Ser Leu Ser Gln Glu Lys Val 7810 7815 7820			23534
ctg ccc tca gac aag ttc aag gac tac cta gag acc atg gct cca gag Leu Pro Ser Asp Lys Phe Lys Asp Tyr Leu Glu Thr Met Ala Pro Glu 7825 7830 7835			23582
ctc ctg gag ggc cag ggg gct gtt cca cag aca gac atc tgg gcc atc Leu Leu Glu Gly Gln Gly Ala Val Pro Gln Thr Asp Ile Trp Ala Ile 7840 7845 7850			23630
ggt gtg aca gcc ttc atc atg ctg agc gcc gag tac ccg gtg agc agc Gly Val Thr Ala Phe Ile Met Leu Ser Ala Glu Tyr Pro Val Ser Ser 7855 7860 7865			23678
gag ggt gca cgc gac ctg cag aga gga ctg cgc aag ggg ctg gtc cgg Glu Gly Ala Arg Asp Leu Gln Arg Gly Leu Arg Lys Gly Leu Val Arg 7870 7875 7880 7885			23726
ctg agc cgc tgc tac gcg ggg ctg tcc ggg ggc gcc gtg gcc ttc ctg Leu Ser Arg Cys Tyr Ala Gly Leu Ser Gly Gly Ala Val Ala Phe Leu 7890 7895 7900			23774
cgc agc act ctg tgc gcc cag ccc tgg ggc cgg ccc tgc gcg tcc agc Arg Ser Thr Leu Cys Ala Gln Pro Trp Gly Arg Pro Cys Ala Ser Ser 7905 7910 7915			23822

tgc ctg cag tgc ccg tgg cta aca gag gag ggc ccg gcc tgt tcg cgg 23870  
 Cys Leu Gln Cys Pro Trp Leu Thr Glu Glu Gly Pro Ala Cys Ser Arg  
           7920                          7925                          7930

ccc gcg ccc gtg acc ttc cct acc gcg cgg ctg cgc gtc ttc gtg cgc 23918  
 Pro Ala Pro Val Thr Phe Pro Thr Ala Arg Leu Arg Val Phe Val Arg  
           7935                          7940                          7945

aat cgc gag aag aga cgc gcg ctg ctg tac aag agg cac aac ctg gcc 23966  
 Asn Arg Glu Lys Arg Arg Ala Leu Leu Tyr Lys Arg His Asn Leu Ala  
           7950                          7955                          7960                          7965

cag gtg cgc tga gggtcgcccc ggccacacccc ttgggtctccc cgctgggggt 24018  
 Gln Val Arg \*

cgctgcagac gcgccaataa aaacgcccag ccgggcgaga aaaaaaaaaa aaaaaaaaaa 24078  
 aaaaaaaaaa aaaaaaaaaag gcggccgcta aaaaagtcta ga 24120

<210> 5  
 <211> 7968  
 <212> PRT  
 <213> Homo sapiens

<400> 5

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25  
26  
27  
28  
29  
30  
31  
32  
33  
34  
35  
36  
37  
38  
39  
40  
41  
42  
43  
44  
45  
46  
47  
48  
49  
50  
51  
52  
53  
54  
55  
56  
57  
58  
59  
60  
61  
62  
63  
64  
65  
66  
67  
68  
69  
70  
71  
72  
73  
74  
75  
76  
77  
78  
79  
80  
81  
82  
83  
84  
85  
86  
87  
88  
89  
90  
91  
92  
93  
94  
95  
96  
97  
98  
99  
100  
101  
102  
103  
104  
105  
106  
107  
108  
109  
110  
111  
112  
113  
114  
115  
116  
117  
118  
119  
120  
121  
122  
123  
124  
125  
126  
127  
128  
129  
130  
131  
132  
133  
134  
135  
136  
137  
138  
139  
140  
141  
142  
143  
144  
145  
146  
147  
148  
149  
150  
151  
152  
153  
154  
155  
156  
157  
158  
159  
160  
161  
162  
163  
164  
165  
166  
167  
168  
169  
170  
171  
172  
173  
174  
175  
176  
177  
178  
179  
180  
181  
182  
183  
184  
185  
186  
187  
188  
189  
190  
191  
192  
193  
194  
195  
196  
197  
198  
199  
200  
201  
202  
203  
204  
205  
206  
207  
208  
209  
210  
211  
212  
213  
214  
215  
216  
217  
218  
219  
220  
221  
222  
223  
224  
225  
226  
227  
228  
229  
230  
231  
232  
233  
234  
235  
236  
237  
238  
239  
240  
241  
242  
243  
244  
245  
246  
247  
248  
249  
250  
251  
252  
253  
254  
255  
256  
257  
258  
259  
260  
261  
262  
263  
264  
265  
266  
267  
268  
269  
270  
271  
272  
273  
274  
275  
276  
277  
278  
279  
280  
281  
282  
283  
284  
285  
286  
287  
288  
289  
290  
291  
292  
293  
294  
295  
296  
297  
298  
299  
300

Met Asp Gln Pro Gln Phe Ser Gly Ala Pro Arg Phe Leu Thr Arg Pro  
 1                          5                          10                          15  
 Lys Ala Phe Val Val Ser Val Gly Lys Asp Ala Thr Leu Ser Cys Gln  
           20                          25                          30  
 Ile Val Gly Asn Pro Thr Pro Gln Val Ser Trp Glu Lys Asp Gln Gln  
           35                          40                          45  
 Pro Val Thr Ala Gly Ala Arg Phe Arg Leu Ala Gln Asp Gly Asp Leu  
           50                          55                          60  
 Tyr Arg Leu Thr Ile Leu Asp Leu Ala Leu Gly Asp Ser Gly Gln Tyr  
           65                          70                          75                          80  
 Val Cys Arg Ala Arg Asn Ala Ile Gly Glu Ala Phe Ala Ala Val Gly  
           85                          90                          95  
 Leu Gln Val Asp Ala Glu Ala Ala Cys Ala Glu Gln Ala Pro His Phe  
           100                          105                          110  
 Leu Leu Arg Pro Thr Ser Ile Arg Val Arg Glu Gly Ser Glu Ala Thr  
           115                          120                          125  
 Phe Arg Cys Arg Val Gly Gly Ser Pro Arg Pro Ala Val Ser Trp Ser  
           130                          135                          140  
 Lys Asp Gly Arg Arg Leu Gly Glu Pro Asp Gly Pro Arg Val Arg Val  
           145                          150                          155                          160  
 Glu Glu Leu Gly Glu Ala Ser Ala Leu Arg Ile Arg Ala Ala Arg Pro  
           165                          170                          175  
 Arg Asp Gly Gly Thr Tyr Glu Val Arg Ala Glu Asn Pro Leu Gly Ala  
           180                          185                          190  
 Ala Ser Ala Ala Ala Ala Leu Val Val Asp Ser Asp Ala Ala Asp Thr  
           195                          200                          205  
 Ala Ser Arg Pro Gly Thr Ser Thr Ala Ala Leu Leu Ala His Leu Gln  
           210                          215                          220  
 Arg Arg Arg Glu Ala Met Arg Ala Glu Gly Ala Pro Ala Ser Pro Pro  
           225                          230                          235                          240  
 Ser Thr Gly Thr Arg Thr Cys Thr Val Thr Glu Gly Lys His Ala Arg  
           245                          250                          255  
 Leu Ser Cys Tyr Val Thr Gly Glu Pro Lys Pro Glu Thr Val Trp Lys  
           260                          265                          270  
 Lys Asp Gly Gln Leu Val Thr Glu Gly Arg Arg His Val Val Tyr Glu

275	280	285
Asp Ala Gln Glu Asn Phe Val	Leu Lys Ile Leu Phe Cys Lys Gln Ser	
290	295	300
Asp Arg Gly Leu Tyr Thr	Cys Thr Ala Ser Asn Leu Val Gly Gln Thr	
305	310	315
Tyr Ser Ser Val Leu Val Val	Arg Glu Pro Ala Val Pro Phe Lys	
325	330	335
Lys Arg Leu Gln Asp Leu Glu Val	Arg Glu Lys Glu Ser Ala Thr Phe	
340	345	350
Leu Cys Glu Val Pro Gln Pro Ser	Thr Glu Ala Ala Trp Phe Lys Glu	
355	360	365
Glu Thr Arg Leu Trp Ala Ser Ala	Lys Tyr Gly Ile Glu Glu Glu Gly	
370	375	380
Thr Glu Arg Arg Leu Thr Val Arg	Asn Val Ser Ala Asp Asp Ala	
385	390	395
Val Tyr Ile Cys Glu Thr Pro Glu	Gly Ser Arg Thr Val Ala Glu Leu	
405	410	415
Ala Val Gln Gly Asn Leu Leu Arg	Lys Leu Pro Arg Lys Thr Ala Val	
420	425	430
Arg Val Gly Asp Thr Ala Met Phe	Cys Val Glu Leu Ala Val Pro Val	
435	440	445
Gly Pro Val His Trp Leu Arg Asn	Gln Glu Glu Val Val Ala Gly Gly	
450	455	460
Arg Val Ala Ile Ser Ala Glu Gly	Thr Arg His Thr Leu Thr Ile Ser	
465	470	475
Gln Cys Cys Leu Glu Asp Val Gly	Gln Val Ala Phe Met Ala Gly Asp	
485	490	495
Cys Gln Thr Ser Thr Arg Phe Cys	Val Ser Ala Pro Arg Lys Pro Pro	
500	505	510
Leu Gln Pro Pro Val Asp Pro Val	Lys Ala Arg Met Glu Ser Ser	
515	520	525
Val Ile Leu Ser Trp Ser Pro Pro	His Gly Glu Arg Pro Val Thr	
530	535	540
Ile Asp Gly Tyr Leu Val Glu Lys	Lys Lys Leu Gly Thr Tyr Thr Trp	
545	550	555
Ile Arg Cys His Glu Ala Glu Trp	Val Ala Thr Pro Glu Leu Thr Val	
565	570	575
Ala Asp Val Ala Glu Glu Gly Asn	Phe Gln Phe Arg Val Ser Ala Leu	
580	585	590
Asn Ser Phe Gly Gln Ser Pro Tyr	Leu Glu Phe Pro Gly Thr Val His	
595	600	605
Leu Ala Pro Lys Leu Ala Val Arg	Thr Pro Leu Lys Ala Val Gln Ala	
610	615	620
Val Glu Gly Gly Glu Val Thr Phe	Ser Val Asp Leu Thr Val Ala Ser	
625	630	635
Ala Gly Glu Trp Phe Leu Asp Gly	Gln Ala Leu Lys Ala Ser Ser Val	
645	650	655
Tyr Glu Ile His Cys Asp Arg Thr	Arg His Thr Leu Thr Ile Arg Glu	
660	665	670
Val Pro Ala Ser Leu His Gly Ala	Gln Leu Lys Phe Val Ala Asn Gly	
675	680	685
Ile Glu Ser Ser Ile Arg Met Glu	Val Arg Ala Ala Pro Gly Leu Thr	
690	695	700
Ala Asn Lys Pro Pro Ala Ala Ala	Ala Arg Glu Val Leu Ala Arg Leu	
705	710	715
His Glu Glu Ala Gln Leu Leu Ala	Glu Leu Ser Asp Gln Ala Ala Ala	
725	730	735
Val Thr Trp Leu Lys Asp Gly Arg	Thr Leu Ser Pro Gly Pro Lys Tyr	
740	745	750
Glu Val Gln Ala Ser Ala Gly Arg	Arg Val Leu Leu Val Arg Asp Val	
755	760	765

Ala	Arg	Asp	Asp	Ala	Gly	Leu	Tyr	Glu	Cys	Val	Ser	Arg	Gly	Gly	Arg	
770						775					780					
Ile	Ala	Tyr	Gln	Leu	Ser	Val	Gln	Gly	Leu	Ala	Arg	Phe	Leu	His	Lys	
785					790					795					800	
Asp	Met	Ala	Gly	Ser	Cys	Val	Asp	Ala	Val	Ala	Gly	Gly	Pro	Ala	Gln	
				805					810					815		
Phe	Glu	Cys	Glu	Thr	Ser	Glu	Ala	His	Val	His	Val	His	Trp	Tyr	Lys	
			820					825					830			
Asp	Gly	Met	Glu	Leu	Gly	His	Ser	Gly	Glu	Arg	Phe	Leu	Gln	Glu	Asp	
		835					840					845				
Val	Gly	Thr	Arg	His	Arg	Leu	Val	Ala	Ala	Thr	Val	Thr	Arg	Gln	Asp	
		850				855					860					
Glu	Gly	Thr	Tyr	Ser	Cys	Arg	Val	Gly	Glu	Asp	Ser	Val	Asp	Phe	Arg	
865					870					875					880	
Leu	Arg	Val	Ser	Glu	Pro	Lys	Val	Val	Phe	Ala	Lys	Glu	Gln	Leu	Ala	
				885					890					895		
Arg	Arg	Lys	Leu	Gln	Ala	Glu	Ala	Gly	Ala	Ser	Ala	Thr	Leu	Ser	Cys	
			900					905					910			
Glu	Val	Ala	Gln	Ala	Gln	Thr	Glu	Val	Thr	Trp	Tyr	Lys	Asp	Gly	Lys	
		915					920					925				
Lys	Leu	Ser	Ser	Ser	Ser	Lys	Val	Cys	Met	Glu	Ala	Thr	Gly	Cys	Thr	
	930					935						940				
Arg	Arg	Leu	Val	Val	Gln	Gln	Ala	Gly	Gln	Ala	Asp	Ala	Gly	Glu	Tyr	
945					950					955					960	
Ser	Cys	Glu	Ala	Gly	Gly	Gln	Arg	Leu	Ser	Phe	His	Leu	Asp	Val	Lys	
				965					970					975		
Glu	Pro	Lys	Val	Val	Phe	Ala	Lys	Asp	Gln	Val	Ala	His	Ser	Glu	Val	
			980					985					990			
Gln	Ala	Glu	Ala	Gly	Ala	Asn	Ala	Thr	Leu	Ser	Cys	Glu	Val	Ala	Gln	
		995					1000					1005				
Ala	Gln	Ala	Glu	Val	Met	Trp	Tyr	Lys	Asp	Gly	Lys	Lys	Leu	Ser	Ser	
		1010				1015						1020				
Ser	Leu	Lys	Val	His	Val	Glu	Ala	Lys	Gly	Cys	Arg	Arg	Arg	Leu	Val	
1025					1030					1035					1040	
Val	Gln	Gln	Ala	Gly	Lys	Thr	Asp	Ala	Gly	Asp	Tyr	Ser	Cys	Glu	Ala	
				1045					1050					1055		
Arg	Gly	Gln	Arg	Val	Ser	Phe	Arg	Leu	His	Ile	Thr	Glu	Pro	Lys	Met	
			1060					1065					1070			
Met	Phe	Ala	Lys	Glu	Gln	Ser	Val	His	Asn	Glu	Val	Gln	Ala	Glu	Ala	
		1075					1080					1085				
Gly	Ala	Ser	Ala	Met	Leu	Ser	Cys	Glu	Val	Ala	Gln	Ala	Gln	Thr	Glu	
					1090		1095				1100					
Val	Thr	Trp	Tyr	Lys	Asp	Gly	Lys	Lys	Leu	Ser	Ser	Ser	Ser	Lys	Val	
1105				1110						1115					1120	
Gly	Met	Glu	Val	Lys	Gly	Cys	Thr	Arg	Arg	Leu	Val	Leu	Pro	Gln	Ala	
				1125					1130					1135		
Gly	Lys	Ala	Asp	Ala	Gly	Glu	Tyr	Ser	Cys	Glu	Ala	Gly	Gly	Gln	Arg	
			1140					1145					1150			
Val	Ser	Phe	His	Leu	His	Ile	Thr	Glu	Pro	Lys	Gly	Val	Phe	Ala	Lys	
		1155					1160					1165				
Glu	Gln	Ser	Val	His	Asn	Glu	Val	Gln	Ala	Glu	Ala	Gly	Thr	Thr	Ala	
		1170				1175					1180					
Met	Leu	Ser	Cys	Glu	Val	Ala	Gln	Pro	Gln	Thr	Glu	Val	Thr	Trp	Tyr	
1185				1190						1195					1200	
Lys	Asp	Gly	Lys	Lys	Leu	Ser	Ser	Ser	Ser	Lys	Val	Arg	Met	Glu	Val	
				1205						1210				1215		
Lys	Gly	Cys	Thr	Arg	Arg	Leu	Val	Val	Gln	Gln	Val	Gly	Lys	Ala	Asp	
			1220					1225					1230			
Ala	Gly	Glu	Tyr	Ser	Cys	Glu	Ala	Gly	Gly	Gln	Arg	Val	Ser	Phe	Gln	
		1235					1240					1245				
Leu	His	Ile	Thr	Glu	Pro	Lys	Ala	Val	Phe	Ala	Lys	Glu	Gln	Leu	Val	

1250	1255	1260
His Asn Glu Val Arg Thr Glu Ala Gly Ala Ser Ala Thr Leu Ser Cys		
1265	1270	1275
Glu Val Ala Gln Ala Gln Thr Glu Val Thr Trp Tyr Lys Asp Gly Lys		1280
	1285	1290
Lys Leu Ser Ser Ser Ser Lys Val Arg Ile Glu Ala Ala Gly Cys Met		1295
	1300	1305
Arg Gln Leu Val Val Gln Gln Ala Gly Gln Ala Asp Ala Gly Glu Tyr		1310
	1315	1320
Thr Cys Glu Ala Gly Gly Gln Arg Leu Ser Phe His Leu Asp Val Ser		1325
	1330	1335
Glu Pro Lys Ala Val Phe Ala Lys Glu Gln Leu Ala His Arg Lys Val		1340
1345	1350	1355
Gln Ala Glu Ala Gly Ala Ile Ala Thr Leu Ser Cys Glu Val Ala Gln		1360
	1365	1370
Ala Gln Thr Glu Val Thr Trp Tyr Lys Asp Gly Lys Lys Leu Ser Ser		1375
	1380	1385
Ser Ser Lys Val Arg Met Glu Ala Val Gly Cys Thr Arg Arg Leu Val		1390
	1395	1400
Val Gln Gln Ala Cys Gln Ala Asp Thr Gly Glu Tyr Ser Cys Glu Ala		1405
1410	1415	1420
Gly Gly Gln Arg Leu Ser Phe Ser Leu Asp Val Ala Glu Pro Lys Val		1425
	1430	1435
Val Phe Ala Lys Glu Gln Pro Val His Arg Glu Val Gln Ala Gln Ala		1440
	1445	1450
Gly Ala Ser Thr Thr Leu Ser Cys Glu Val Ala Gln Ala Gln Thr Glu		1455
	1460	1465
Val Met Trp Tyr Lys Asp Gly Lys Lys Leu Ser Phe Ser Ser Lys Val		1470
	1475	1480
Arg Met Glu Ala Val Gly Cys Thr Arg Arg Leu Val Val Gln Gln Ala		1485
1490	1495	1500
Gly Gln Ala Asp Ala Gly Glu Tyr Ser Cys Glu Ala Gly Ser Gln Arg		1505
	1510	1515
Leu Ser Phe His Leu His Val Ala Glu Pro Lys Ala Val Phe Ala Lys		1520
	1525	1530
Glu Gln Pro Ala Ser Arg Glu Val Gln Ala Glu Ala Gly Thr Ser Ala		1535
	1540	1545
Thr Leu Ser Cys Glu Val Ala Gln Ala Gln Thr Glu Val Thr Trp Tyr		1550
	1555	1560
Lys Asp Gly Lys Lys Leu Ser Ser Ser Lys Val Arg Met Glu Ala		1565
	1570	1575
Val Gly Cys Thr Arg Arg Leu Val Val Gln Glu Ala Gly Gln Ala Asp		1580
1585	1590	1595
Ala Gly Glu Tyr Ser Cys Lys Ala Gly Asp Gln Arg Leu Ser Phe His		1600
	1605	1610
Leu His Val Ala Glu Pro Lys Val Val Phe Ala Lys Glu Gln Pro Ala		1615
	1620	1625
His Arg Glu Val Gln Ala Glu Ala Gly Ala Ser Ala Thr Leu Ser Cys		1630
	1635	1640
Glu Val Ala Gln Ala Gln Thr Glu Val Thr Trp Tyr Lys Asp Gly Lys		1645
	1650	1655
Lys Leu Ser Ser Ser Ser Lys Val Arg Val Glu Ala Val Gly Cys Thr		1660
1665	1670	1675
Arg Arg Leu Val Val Gln Gln Ala Gly Gln Ala Asp Ala Gly Glu Tyr		1680
	1685	1690
Ser Cys Glu Ala Gly Gly Gln Arg Leu Ser Phe Arg Leu His Val Ala		1695
	1700	1705
Glu Leu Glu Pro Gln Ile Ser Glu Arg Pro Cys Arg Arg Glu Pro Leu		1710
	1715	1720
Val Val Lys Glu His Glu Asp Ile Ile Leu Thr Ala Thr Leu Ala Thr		1725
	1730	1735
		1740



Pro Ser Ala Ala Thr Val Thr Trp Leu Lys Asp Gly Val Glu Ile Arg  
 1745 1750 1755 1760  
 Arg Ser Lys Arg His Glu Thr Ala Ser Gln Gly Asp Thr His Thr Leu  
 1765 1770 1775  
 Thr Val His Gly Ala Gln Val Leu Asp Ser Ala Ile Tyr Ser Cys Arg  
 1780 1785 1790  
 Val Gly Ala Glu Gly Gln Asp Phe Pro Val Gln Val Glu Glu Val Ala  
 1795 1800 1805  
 Ala Lys Phe Cys Arg Leu Leu Glu Pro Val Cys Gly Glu Leu Gly Gly  
 1810 1815 1820  
 Thr Val Thr Leu Ala Cys Glu Leu Ser Pro Ala Cys Ala Glu Val Val  
 1825 1830 1835 1840  
 Trp Arg Cys Gly Asn Thr Gln Pro Arg Val Gly Lys Arg Phe Gln Met  
 1845 1850 1855  
 Val Ala Glu Gly Pro Val Arg Ser Leu Thr Val Leu Gly Leu Arg Ala  
 1860 1865 1870  
 Glu Asp Ala Gly Glu Tyr Val Cys Glu Ser Arg Asp Asp His Thr Ser  
 1875 1880 1885  
 Ala Gln Leu Thr Val Ser Val Pro Arg Val Val Lys Phe Met Ser Gly  
 1890 1895 1900  
 Leu Ser Thr Val Val Ala Glu Glu Gly Gly Glu Ala Thr Phe Gln Cys  
 1905 1910 1915 1920  
 Val Val Ser Pro Ser Asp Val Ala Val Val Trp Phe Arg Asp Gly Ala  
 1925 1930 1935  
 Leu Leu Gln Pro Ser Glu Lys Phe Ala Ile Ser Gln Ser Gly Ala Ser  
 1940 1945 1950  
 His Ser Leu Thr Ile Ser Asp Leu Val Leu Glu Asp Ala Gly Gln Ile  
 1955 1960 1965  
 Thr Val Glu Ala Glu Gly Ala Ser Ser Ser Ala Ala Leu Arg Val Arg  
 1970 1975 1980  
 Glu Ala Pro Val Leu Phe Lys Lys Lys Leu Glu Pro Gln Thr Val Glu  
 1985 1990 1995 2000  
 Glu Arg Ser Ser Val Thr Leu Glu Val Glu Leu Thr Arg Pro Trp Pro  
 2005 2010 2015  
 Glu Leu Arg Trp Thr Arg Asn Ala Thr Ala Leu Ala Pro Gly Lys Asn  
 2020 2025 2030  
 Val Glu Ile His Ala Glu Gly Ala Arg His Arg Leu Val Leu His Asn  
 2035 2040 2045  
 Val Gly Phe Ala Asp Arg Gly Phe Phe Gly Cys Glu Thr Pro Asp Asp  
 2050 2055 2060  
 Lys Thr Gln Ala Lys Leu Thr Val Glu Met Arg Gln Val Arg Leu Val  
 2065 2070 2075 2080  
 Arg Gly Leu Gln Ala Val Glu Ala Arg Glu Gln Gly Thr Ala Thr Met  
 2085 2090 2095  
 Glu Val Gln Leu Ser His Ala Asp Val Asp Gly Ser Trp Thr Arg Asp  
 2100 2105 2110  
 Gly Leu Arg Phe Gln Gln Gly Pro Thr Cys His Leu Ala Val Arg Gly  
 2115 2120 2125  
 Pro Met His Thr Leu Thr Leu Ser Gly Leu Arg Pro Glu Asp Ser Gly  
 2130 2135 2140  
 Leu Met Val Phe Lys Ala Glu Gly Val His Thr Ser Ala Arg Leu Val  
 2145 2150 2155 2160  
 Val Thr Glu Leu Pro Val Ser Phe Ser Arg Pro Leu Gln Asp Val Val  
 2165 2170 2175  
 Thr Thr Glu Lys Glu Lys Val Thr Leu Glu Cys Glu Leu Ser Arg Pro  
 2180 2185 2190  
 Asn Val Asp Val Arg Trp Leu Lys Asp Gly Val Glu Leu Arg Ala Gly  
 2195 2200 2205  
 Lys Thr Met Ala Ile Ala Ala Gln Gly Ala Cys Arg Ser Leu Thr Ile  
 2210 2215 2220  
 Tyr Arg Cys Glu Phe Ala Asp Gln Gly Val Tyr Val Cys Asp Ala His

2225	2230	2235	2240
Asp Ala Gln Ser	Ser Ala Ser Val Lys Val Gln Gly Arg Thr Tyr Thr		
	2245	2250	2255
Leu Ile Tyr Arg	Arg Val Leu Ala Glu Asp Ala Gly Glu Ile Gln Phe		
	2260	2265	2270
Val Ala Glu Asn Ala Glu Ser Arg Ala Gln Leu Arg Val Lys Glu Leu			
	2275	2280	2285
Pro Val Thr Leu Val Arg Pro Leu Arg Asp Lys Ile Ala Met Glu Lys			
	2290	2295	2300
His Arg Gly Val Leu Glu Cys Gln Val Ser Arg Ala Ser Ala Gln Val			
	2305	2310	2315
Arg Trp Phe Lys Gly Ser Gln Glu Leu Gln Pro Gly Pro Lys Tyr Glu			
	2325	2330	2335
Leu Val Ser Asp Gly Leu Tyr Arg Lys Leu Ile Ile Ser Asp Val His			
	2340	2345	2350
Ala Glu Asp Glu Asp Thr Tyr Thr Cys Asp Ala Gly Asp Val Lys Thr			
	2355	2360	2365
Ser Ala Gln Phe Phe Val Glu Glu Gln Ser Ile Thr Ile Val Arg Gly			
	2370	2375	2380
Leu Gln Asp Val Thr Val Met Glu Pro Ala Pro Ala Trp Phe Glu Cys			
	2385	2390	2395
Glu Thr Ser Ile Pro Ser Val Arg Pro Pro Lys Trp Leu Leu Gly Lys			
	2405	2410	2415
Thr Val Leu Gln Ala Gly Gly Asn Val Gly Leu Glu Gln Glu Gly Thr			
	2420	2425	2430
Val His Arg Leu Met Leu Arg Arg Thr Cys Ser Thr Met Thr Gly Pro			
	2435	2440	2445
Val His Phe Thr Val Gly Lys Ser Arg Ser Ser Ala Arg Leu Val Val			
	2450	2455	2460
Ser Asp Ile Pro Val Val Leu Thr Arg Pro Leu Glu Pro Lys Thr Gly			
	2465	2470	2475
Arg Glu Leu Gln Ser Val Val Leu Ser Cys Asp Phe Arg Pro Ala Pro			
	2485	2490	2495
Lys Ala Val Gln Trp Tyr Lys Asp Asp Thr Pro Leu Ser Pro Ser Glu			
	2500	2505	2510
Lys Phe Lys Met Ser Leu Glu Gly Gln Met Ala Glu Leu Arg Ile Leu			
	2515	2520	2525
Arg Leu Met Pro Ala Asp Ala Gly Val Tyr Arg Cys Gln Ala Gly Ser			
	2530	2535	2540
Ala His Ser Ser Thr Glu Val Thr Val Glu Ala Arg Glu Val Thr Val			
	2545	2550	2555
Thr Gly Pro Leu Gln Asp Ala Glu Ala Thr Glu Glu Gly Trp Ala Ser			
	2565	2570	2575
Phe Ser Cys Glu Leu Ser His Glu Asp Glu Glu Val Glu Trp Ser Leu			
	2580	2585	2590
Asn Gly Met Pro Leu Tyr Asn Asp Ser Phe His Glu Ile Ser His Lys			
	2595	2600	2605
Gly Arg Arg His Thr Leu Val Leu Lys Ser Ile Gln Arg Ala Asp Ala			
	2610	2615	2620
Gly Ile Val Arg Ala Ser Ser Leu Lys Val Ser Thr Ser Ala Arg Leu			
	2625	2630	2635
Glu Val Arg Val Lys Pro Val Val Phe Leu Lys Ala Leu Asp Asp Leu			
	2645	2650	2655
Ser Ala Glu Glu Arg Gly Thr Leu Ala Leu Gln Cys Glu Val Ser Asp			
	2660	2665	2670
Pro Glu Ala His Val Val Trp Arg Lys Asp Gly Val Gln Leu Gly Pro			
	2675	2680	2685
Ser Asp Lys Tyr Asp Phe Leu His Thr Ala Gly Thr Arg Gly Leu Val			
	2690	2695	2700
Val His Asp Val Ser Pro Glu Asp Ala Gly Leu Tyr Thr Cys His Val			
	2705	2710	2715
			2720

Gly Ser Glu Glu Thr Arg Ala Arg Val Arg Val His Asp Leu His Val  
 2725 2730 2735  
 Gly Ile Thr Lys Arg Leu Lys Thr Met Glu Val Leu Glu Gly Glu Ser  
 2740 2745 2750  
 Cys Ser Phe Glu Cys Val Leu Ser His Glu Ser Ala Ser Asp Pro Ala  
 2755 2760 2765  
 Met Trp Thr Val Gly Gly Lys Thr Val Gly Ser Ser Ser Arg Phe Gln  
 2770 2775 2780  
 Ala Thr Arg Gln Gly Arg Lys Tyr Ile Leu Val Val Arg Glu Ala Ala  
 2785 2790 2795 2800  
 Pro Ser Asp Ala Gly Glu Val Val Phe Ser Val Arg Gly Leu Thr Ser  
 2805 2810 2815  
 Lys Ala Ser Leu Ile Val Arg Glu Arg Pro Ala Ala Ile Ile Lys Pro  
 2820 2825 2830  
 Leu Glu Asp Gln Trp Val Ala Pro Gly Glu Asp Val Glu Leu Arg Cys  
 2835 2840 2845  
 Glu Leu Ser Arg Ala Gly Thr Pro Val His Trp Leu Lys Asp Arg Lys  
 2850 2855 2860  
 Ala Ile Arg Lys Ser Gln Lys Tyr Asp Val Val Cys Glu Gly Thr Met  
 2865 2870 2875 2880  
 Ala Met Leu Val Ile Arg Gly Ala Ser Leu Lys Asp Ala Gly Glu Tyr  
 2885 2890 2895  
 Thr Cys Glu Val Glu Ala Ser Lys Ser Thr Ala Ser Leu His Val Glu  
 2900 2905 2910  
 Glu Lys Ala Asn Cys Phe Thr Glu Glu Leu Thr Asn Leu Gln Val Glu  
 2915 2920 2925  
 Glu Lys Gly Thr Ala Val Phe Thr Cys Lys Thr Glu His Pro Ala Ala  
 2930 2935 2940  
 Thr Val Thr Trp Arg Lys Gly Leu Leu Glu Leu Arg Ala Ser Gly Lys  
 2945 2950 2955 2960  
 His Gln Pro Ser Gln Glu Gly Leu Thr Leu Arg Leu Thr Ile Ser Ala  
 2965 2970 2975  
 Leu Glu Lys Ala Asp Ser Asp Thr Tyr Thr Cys Asp Ile Gly Gln Ala  
 2980 2985 2990  
 Gln Ser Arg Ala Gln Leu Leu Val Gln Gly Arg Arg Val His Ile Ile  
 2995 3000 3005  
 Glu Asp Leu Glu Asp Val Asp Val Gln Glu Gly Ser Ser Ala Thr Phe  
 3010 3015 3020  
 Arg Cys Arg Ile Ser Pro Ala Asn Tyr Glu Pro Val His Trp Phe Leu  
 3025 3030 3035 3040  
 Asp Lys Thr Pro Leu His Ala Asn Glu Leu Asn Glu Ile Asp Ala Gln  
 3045 3050 3055  
 Pro Gly Gly Tyr His Val Leu Thr Leu Arg Gln Leu Ala Leu Lys Asp  
 3060 3065 3070  
 Ser Gly Thr Ile Tyr Phe Glu Ala Gly Asp Gln Arg Ala Ser Ala Ala  
 3075 3080 3085  
 Leu Arg Val Thr Glu Lys Pro Ser Val Phe Ser Arg Glu Leu Thr Asp  
 3090 3095 3100  
 Ala Thr Ile Thr Glu Gly Asp Leu Thr Leu Val Cys Glu Thr Ser  
 3105 3110 3115 3120  
 Thr Cys Asp Ile Pro Met Cys Trp Thr Lys Asp Gly Lys Thr Leu Arg  
 3125 3130 3135  
 Gly Ser Ala Arg Cys Gln Leu Ser His Glu Gly His Arg Ala Gln Leu  
 3140 3145 3150  
 Leu Ile Thr Gly Ala Thr Leu Gln Asp Ser Gly Arg Tyr Lys Cys Glu  
 3155 3160 3165  
 Ala Gly Gly Ala Cys Ser Ser Ser Ile Val Arg Val His Ala Arg Pro  
 3170 3175 3180  
 Val Arg Phe Gln Glu Ala Leu Lys Asp Leu Glu Val Leu Glu Gly Gly  
 3185 3190 3195 3200  
 Ala Ala Thr Leu Arg Cys Val Leu Ser Ser Val Ala Ala Pro Val Lys



Met Cys Gly Lys Glu Arg Thr Ser Ala Met Leu Thr Val Arg Ala Met	3700	3705	3710
Pro Ser Lys Phe Ile Glu Gly Leu Arg Asn Glu Glu Ala Thr Glu Gly	3715	3720	3725
Asp Thr Ala Thr Leu Trp Cys Glu Leu Ser Lys Ala Ala Pro Val Glu	3730	3735	3740
Trp Arg Lys Gly His Glu Thr Leu Arg Asp Gly Asp Arg His Ser Leu	3745	3750	3755
Arg Gln Asp Gly Ser Arg Cys Glu Leu Gln Ile Arg Gly Leu Ala Val	3765	3770	3775
Val Asp Ala Gly Glu Tyr Ser Cys Val Cys Gly Gln Glu Arg Thr Ser	3780	3785	3790
Ala Thr Leu Thr Val Arg Ala Leu Pro Ala Arg Phe Ile Glu Asp Val	3795	3800	3805
Lys Asn Gln Glu Ala Arg Glu Gly Ala Thr Ala Val Leu Gln Cys Glu	3810	3815	3820
Leu Ser Lys Ala Ala Pro Val Glu Trp Arg Lys Gly Ser Glu Thr Leu	3825	3830	3835
Arg Gly Gly Asp Arg Tyr Ser Leu Arg Gln Asp Gly Thr Arg Cys Glu	3845	3850	3855
Leu Gln Ile His Gly Leu Ser Val Ala Asp Thr Gly Glu Tyr Ser Cys	3860	3865	3870
Val Cys Gly Gln Glu Arg Thr Ser Ala Thr Leu Thr Val Arg Ala Pro	3875	3880	3885
Gln Pro Val Phe Arg Glu Pro Leu Gln Ser Leu Gln Ala Glu Glu Gly	3890	3895	3900
Ser Thr Ala Thr Leu Gln Cys Glu Leu Ser Glu Pro Thr Ala Thr Val	3905	3910	3915
Val Trp Ser Lys Gly Gly Leu Gln Leu Gln Ala Asn Gly Arg Arg Glu	3925	3930	3935
Pro Arg Leu Gln Gly Cys Thr Ala Glu Leu Val Leu Gln Asp Leu Gln	3940	3945	3950
Arg Glu Asp Thr Gly Glu Tyr Thr Cys Thr Cys Gly Ser Gln Ala Thr	3955	3960	3965
Ser Ala Thr Leu Thr Val Thr Ala Ala Pro Val Arg Phe Leu Arg Glu	3970	3975	3980
Leu Gln His Gln Glu Val Asp Glu Gly Gly Thr Ala His Leu Cys Cys	3985	3990	3995
Glu Leu Ser Arg Ala Gly Ala Ser Val Glu Trp Arg Lys Gly Ser Leu	4005	4010	4015
Gln Leu Phe Pro Cys Ala Lys Tyr Gln Met Val Gln Asp Gly Ala Ala	4020	4025	4030
Ala Glu Leu Leu Val Arg Gly Val Glu Gln Glu Asp Ala Gly Asp Tyr	4035	4040	4045
Thr Cys Asp Thr Gly His Thr Gln Ser Met Ala Ser Leu Ser Val Arg	4050	4055	4060
Val Pro Arg Pro Lys Phe Lys Thr Arg Leu Gln Ser Leu Glu Gln Glu	4065	4070	4075
Thr Gly Asp Ile Ala Arg Leu Cys Cys Gln Leu Ser Asp Ala Glu Ser	4085	4090	4095
Gly Ala Val Val Gln Trp Leu Lys Glu Gly Val Glu Leu His Ala Gly	4100	4105	4110
Pro Lys Tyr Glu Met Arg Ser Gln Gly Ala Thr Arg Glu Leu Leu Ile	4115	4120	4125
His Gln Leu Glu Ala Lys Asp Thr Gly Glu Tyr Ala Cys Val Thr Gly	4130	4135	4140
Gly Gln Lys Thr Ala Ala Ser Leu Arg Val Thr Glu Pro Glu Val Thr	4145	4150	4155
Ile Val Arg Gly Leu Val Asp Ala Glu Val Thr Ala Asp Glu Asp Val	4165	4170	4175
Glu Phe Ser Cys Glu Val Ser Arg Ala Gly Ala Thr Gly Val Gln Trp			

4180	4185	4190
Cys Leu Gln Gly Leu Pro Leu Gln Ser Asn Glu Val Thr Glu Val Ala		
4195	4200	4205
Val Arg Asp Gly Arg Ile His Thr Leu Arg Leu Lys Gly Val Thr Pro		
4210	4215	4220
Glu Asp Ala Gly Thr Val Ser Phe His Leu Gly Asn His Ala Ser Ser		
4225	4230	4235
Ala Gln Leu Thr Val Arg Ala Pro Glu Val Thr Ile Leu Glu Pro Leu		
4245	4250	4255
Gln Asp Val Gln Leu Ser Glu Gly Gln Asp Ala Ser Phe Gln Cys Arg		
4260	4265	4270
Leu Ser Arg Ala Ser Gly Gln Glu Ala Arg Trp Ala Leu Gly Gly Val		
4275	4280	4285
Pro Leu Gln Ala Asn Glu Met Asn Asp Ile Thr Val Glu Gln Gly Thr		
4290	4295	4300
Leu His Leu Leu Thr Leu His Lys Val Thr Leu Glu Asp Ala Gly Thr		
4305	4310	4315
Val Ser Phe His Val Gly Thr Cys Ser Ser Glu Ala Gln Leu Lys Val		
4325	4330	4335
Thr Ala Lys Asn Thr Val Val Arg Gly Leu Glu Asn Val Glu Ala Leu		
4340	4345	4350
Glu Gly Gly Glu Ala Leu Phe Glu Cys Gln Leu Ser Gln Pro Glu Val		
4355	4360	4365
Ala Ala His Thr Trp Leu Leu Asp Asp Glu Pro Val Arg Thr Ser Glu		
4370	4375	4380
Asn Ala Glu Val Val Phe Phe Glu Asn Gly Leu Arg His Leu Leu Leu		
4385	4390	4395
Leu Lys Asn Leu Arg Pro Gln Asp Ser Cys Arg Val Thr Phe Leu Ala		
4405	4410	4415
Gly Asp Met Val Thr Ser Ala Phe Leu Thr Val Arg Gly Trp Arg Leu		
4420	4425	4430
Glu Ile Leu Glu Pro Leu Lys Asn Ala Ala Val Arg Ala Gly Ala Gln		
4435	4440	4445
Ala Arg Phe Thr Cys Thr Leu Ser Glu Ala Val Pro Val Gly Glu Ala		
4450	4455	4460
Ser Trp Tyr Ile Asn Gly Ala Ala Val Gln Pro Asp Asp Ser Asp Trp		
4465	4470	4475
Thr Val Thr Ala Asp Gly Ser His Gln Ala Leu Leu Leu Arg Ser Ala		
4485	4490	4495
Gln Pro His His Ala Gly Glu Val Thr Phe Ala Cys Arg Asp Ala Val		
4500	4505	4510
Ala Ser Ala Arg Leu Thr Val Leu Gly Leu Pro Asp Pro Pro Glu Asp		
4515	4520	4525
Ala Glu Val Val Ala His Ser Ser His Thr Val Thr Leu Ser Trp Ala		
4530	4535	4540
Ala Pro Met Ser Asp Gly Gly Gly Gly Leu Cys Gly Tyr Arg Val Glu		
4545	4550	4555
Val Lys Glu Gly Ala Thr Gly Gln Trp Arg Leu Cys His Glu Leu Val		
4565	4570	4575
Pro Gly Pro Glu Cys Val Val Asp Gly Leu Ala Pro Gly Glu Thr Tyr		
4580	4585	4590
Arg Phe Arg Val Ala Ala Val Gly Pro Val Gly Ala Gly Glu Pro Val		
4595	4600	4605
His Leu Pro Gln Thr Val Arg Leu Ala Glu Pro Pro Lys Pro Val Pro		
4610	4615	4620
Pro Gln Pro Ser Ala Pro Glu Ser Arg Gln Val Ala Ala Gly Glu Asp		
4625	4630	4635
Val Ser Leu Glu Leu Glu Val Val Ala Glu Ala Gly Glu Val Ile Trp		
4645	4650	4655
His Lys Gly Met Glu Arg Ile Gln Pro Gly Gly Arg Phe Glu Val Val		
4660	4665	4670

Ser Gln Gly Arg Gln Gln Met Leu Val Ile Lys Gly Phe Thr Ala Glu  
 4675 4680 4685  
 Asp Gln Gly Glu Tyr His Cys Gly Leu Ala Gln Gly Ser Ile Cys Pro  
 4690 4695 4700  
 Ala Ala Ala Thr Phe Gln Val Ala Leu Ser Pro Ala Ser Val Asp Glu  
 4705 4710 4715 4720  
 Ala Pro Gln Pro Ser Leu Pro Pro Glu Ala Ala Gln Glu Gly Asp Leu  
 4725 4730 4735  
 His Leu Leu Trp Glu Ala Leu Ala Arg Lys Arg Arg Met Ser Arg Glu  
 4740 4745 4750  
 Pro Thr Leu Asp Ser Ile Ser Glu Leu Pro Glu Glu Asp Gly Arg Ser  
 4755 4760 4765  
 Gln Arg Leu Pro Gln Glu Ala Glu Glu Val Ala Pro Asp Leu Ser Glu  
 4770 4775 4780  
 Gly Tyr Ser Thr Ala Asp Glu Leu Ala Arg Thr Gly Asp Ala Asp Leu  
 4785 4790 4795 4800  
 Ser His Thr Ser Ser Asp Asp Glu Ser Arg Ala Gly Thr Pro Ser Leu  
 4805 4810 4815  
 Val Thr Tyr Leu Lys Lys Ala Gly Arg Pro Gly Thr Ser Pro Leu Ala  
 4820 4825 4830  
 Ser Lys Val Gly Ala Pro Ala Ala Pro Ser Val Lys Pro Gln Gln Gln  
 4835 4840 4845  
 Gln Glu Pro Leu Ala Ala Val Arg Pro Pro Leu Gly Asp Leu Ser Thr  
 4850 4855 4860  
 Lys Asp Leu Gly Asp Pro Ser Met Asp Lys Ala Ala Val Lys Ile Gln  
 4865 4870 4875 4880  
 Ala Ala Phe Lys Gly Tyr Lys Val Arg Lys Glu Met Lys Gln Gln Glu  
 4885 4890 4895  
 Gly Pro Met Phe Ser His Thr Phe Gly Asp Thr Glu Ala Gln Val Gly  
 4900 4905 4910  
 Asp Ala Leu Arg Leu Glu Cys Val Val Ala Ser Lys Ala Asp Val Arg  
 4915 4920 4925  
 Ala Arg Trp Leu Lys Asp Gly Val Glu Leu Thr Asp Gly Arg His His  
 4930 4935 4940  
 His Ile Asp Gln Leu Gly Asp Gly Thr Cys Ser Leu Leu Ile Ala Gly  
 4945 4950 4955 4960  
 Leu Asp Arg Ala Asp Ala Gly Cys Tyr Thr Cys Gln Val Ser Asn Lys  
 4965 4970 4975  
 Phe Gly Gln Val Thr His Ser Ala Cys Val Val Val Ser Gly Ser Glu  
 4980 4985 4990  
 Ser Glu Ala Glu Ser Ser Ser Gly Gly Glu Leu Asp Asp Ala Phe Arg  
 4995 5000 5005  
 Arg Ala Ala Arg Arg Leu His Arg Leu Phe Arg Thr Lys Ser Pro Ala  
 5010 5015 5020  
 Glu Val Ser Asp Glu Glu Leu Phe Leu Ser Ala Asp Glu Gly Pro Ala  
 5025 5030 5035 5040  
 Glu Pro Glu Glu Pro Ala Asp Trp Gln Thr Tyr Arg Glu Asp Glu His  
 5045 5050 5055  
 Phe Ile Cys Ile Arg Phe Glu Ala Leu Thr Glu Ala Arg Gln Ala Val  
 5060 5065 5070  
 Thr Arg Phe Gln Glu Met Phe Ala Thr Leu Gly Ile Gly Val Glu Ile  
 5075 5080 5085  
 Lys Leu Val Glu Gln Gly Pro Arg Arg Val Glu Met Cys Ile Ser Lys  
 5090 5095 5100  
 Glu Thr Pro Ala Pro Val Val Pro Pro Glu Pro Leu Pro Ser Leu Leu  
 5105 5110 5115 5120  
 Thr Ser Asp Ala Ala Pro Val Phe Leu Thr Glu Leu Gln Asn Gln Glu  
 5125 5130 5135  
 Val Gln Asp Gly Tyr Pro Val Ser Phe Asp Cys Val Val Thr Gly Gln  
 5140 5145 5150  
 Pro Met Pro Ser Val Arg Trp Phe Lys Asp Gly Lys Leu Leu Glu Glu

5155	5160	5165
Asp Asp His Tyr Met Ile	Asn Glu Asp Gln Gln Gly Gly His Gln Leu	
5170	5175	5180
Ile Ile Thr Ala Val Val	Pro Ala Asp Met Gly Val Tyr Arg Cys Leu	
5185	5190	5195
Ala Glu Asn Ser Met Gly Val Ser Ser Thr Lys Ala Glu Leu Arg Val		5200
5205	5210	5215
Asp Leu Thr Ser Thr Asp Tyr Asp Thr Ala Ala Asp Ala Thr Glu Ser		
5220	5225	5230
Ser Ser Tyr Phe Ser Ala Gln Gly Tyr Leu Ser Ser Arg Glu Gln Glu		
5235	5240	5245
Gly Thr Glu Ser Thr Thr Asp Glu Gly Gln Leu Pro Gln Val Val Glu		
5250	5255	5260
Glu Leu Arg Asp Leu Gln Val Ala Pro Gly Thr Arg Leu Ala Lys Phe		
5265	5270	5275
Gln Leu Lys Val Lys Gly Tyr Pro Ala Pro Arg Leu Tyr Trp Phe Lys		5280
5285	5290	5295
Asp Gly Gln Pro Leu Thr Ala Ser Ala His Ile Arg Met Thr Gly Lys		
5300	5305	5310
Lys Ile Leu His Thr Leu Glu Ile Ile Ser Val Thr Arg Glu Asp Ser		
5315	5320	5325
Gly Gln Tyr Ala Ala Tyr Ile Ser Asn Ala Met Gly Ala Ala Tyr Ser		
5330	5335	5340
Ser Ala Arg Leu Leu Val Arg Gly Pro Asp Glu Pro Glu Glu Lys Pro		
5345	5350	5355
Ala Ser Asp Val His Glu Gln Leu Val Pro Pro Arg Met Leu Glu Arg		
5365	5370	5375
Phe Thr Pro Lys Lys Val Lys Lys Gly Ser Ser Ile Thr Phe Ser Val		
5380	5385	5390
Lys Val Glu Gly Arg Pro Val Pro Thr Val His Trp Leu Arg Glu Glu		
5395	5400	5405
Ala Glu Arg Gly Val Leu Trp Ile Gly Pro Asp Thr Pro Gly Tyr Thr		
5410	5415	5420
Val Ala Ser Ser Ala Gln Gln His Ser Leu Val Leu Leu Asp Val Gly		
5425	5430	5435
Arg Gln His Gln Gly Thr Tyr Thr Cys Ile Ala Ser Asn Ala Ala Gly		
5445	5450	5455
Gln Ala Leu Cys Ser Ala Ser Leu His Val Ser Gly Leu Pro Lys Val		
5460	5465	5470
Glu Glu Gln Glu Lys Val Lys Glu Ala Leu Ile Ser Thr Phe Leu Gln		
5475	5480	5485
Gly Thr Thr Gln Ala Ile Ser Ala Gln Gly Leu Glu Thr Ala Ser Phe		
5490	5495	5500
Ala Asp Leu Gly Gly Gln Arg Lys Glu Glu Pro Leu Ala Ala Lys Glu		
5505	5510	5515
Ala Leu Gly His Leu Ser Leu Ala Glu Val Gly Thr Glu Glu Phe Leu		
5525	5530	5535
Gln Lys Leu Thr Ser Gln Ile Thr Glu Met Val Ser Ala Lys Ile Thr		
5540	5545	5550
Gln Ala Lys Leu Gln Val Pro Gly Gly Asp Ser Asp Glu Asp Ser Lys		
5555	5560	5565
Thr Pro Ser Ala Ser Pro Arg His Gly Arg Ser Arg Pro Ser Ser Ser		
5570	5575	5580
Ile Gln Glu Ser Ser Ser Glu Ser Glu Asp Gly Asp Ala Arg Gly Glu		
5585	5590	5595
Ile Phe Asp Ile Tyr Val Val Thr Ala Asp Tyr Leu Pro Leu Gly Ala		
5605	5610	5615
Glu Gln Asp Ala Ile Thr Leu Arg Glu Gly Gln Tyr Val Glu Val Leu		
5620	5625	5630
Asp Ala Ala His Pro Leu Arg Trp Leu Val Arg Thr Lys Pro Thr Lys		
5635	5640	5645



Ser Ser Pro Ser Arg Gln Gly Trp Val Ser Pro Ala Tyr Leu Asp Arg  
 5650 5655 5660  
 Arg Leu Lys Leu Ser Pro Glu Trp Gly Ala Ala Glu Ala Pro Glu Phe  
 5665 5670 5675 5680  
 Pro Gly Glu Ala Val Ser Glu Asp Glu Tyr Lys Ala Arg Leu Ser Ser  
 5685 5690 5695  
 Val Ile Gln Glu Leu Leu Ser Ser Glu Gln Ala Phe Val Glu Glu Leu  
 5700 5705 5710  
 Gln Phe Leu Gln Ser His His Leu Gln His Leu Glu Arg Cys Pro His  
 5715 5720 5725  
 Val Pro Ile Ala Val Ala Gly Gln Lys Ala Val Ile Phe Arg Asn Val  
 5730 5735 5740  
 Arg Asp Ile Gly Arg Phe His Ser Ser Phe Leu Gln Glu Leu Gln Gln  
 5745 5750 5755 5760  
 Cys Asp Thr Asp Asp Val Ala Met Cys Phe Ile Lys Asn Gln Ala  
 5765 5770 5775  
 Ala Phe Glu Gln Tyr Leu Glu Phe Leu Val Gly Arg Val Gln Ala Glu  
 5780 5785 5790  
 Ser Val Val Val Ser Thr Ala Ile Gln Glu Phe Tyr Lys Lys Tyr Ala  
 5795 5800 5805  
 Glu Glu Ala Leu Leu Ala Gly Asp Pro Ser Gln Pro Pro Pro Pro Pro  
 5810 5815 5820  
 Leu Gln His Tyr Leu Glu Gln Pro Val Glu Arg Val Gln Arg Tyr Gln  
 5825 5830 5835 5840  
 Ala Leu Leu Lys Glu Leu Ile Arg Asn Lys Ala Arg Asn Arg Gln Asn  
 5845 5850 5855  
 Cys Ala Leu Leu Glu Gln Ala Tyr Ala Val Val Ser Ala Leu Pro Gln  
 5860 5865 5870  
 Arg Ala Glu Asn Lys Leu His Val Ser Leu Met Glu Asn Tyr Pro Gly  
 5875 5880 5885  
 Thr Leu Glu Ala Leu Gly Glu Pro Ile Arg Gln Gly His Phe Ile Val  
 5890 5895 5900  
 Trp Glu Gly Ala Pro Gly Ala Arg Met Pro Trp Lys Gly His Asn Arg  
 5905 5910 5915 5920  
 His Val Phe Leu Phe Arg Asn His Leu Val Ile Cys Lys Pro Arg Arg  
 5925 5930 5935  
 Asp Ser Arg Thr Asp Thr Val Ser Tyr Val Phe Arg Asn Met Met Lys  
 5940 5945 5950  
 Leu Ser Ser Ile Asp Leu Asn Asp Gln Val Glu Gly Asp Asp Arg Ala  
 5955 5960 5965  
 Phe Glu Val Trp Gln Glu Arg Glu Asp Ser Val Arg Lys Tyr Leu Leu  
 5970 5975 5980  
 Gln Ala Arg Thr Ala Ile Ile Lys Ser Ser Trp Val Lys Glu Ile Cys  
 5985 5990 5995 6000  
 Gly Ile Gln Gln Arg Leu Ala Leu Pro Val Trp Arg Pro Pro Asp Phe  
 6005 6010 6015  
 Glu Glu Glu Leu Ala Asp Cys Thr Ala Glu Leu Gly Glu Thr Val Lys  
 6020 6025 6030  
 Leu Ala Cys Arg Val Thr Gly Thr Pro Lys Pro Val Ile Ser Trp Tyr  
 6035 6040 6045  
 Lys Asp Gly Lys Ala Val Gln Val Asp Pro His His Ile Leu Ile Glu  
 6050 6055 6060  
 Asp Pro Asp Gly Ser Cys Ala Leu Ile Leu Asp Ser Leu Thr Gly Val  
 6065 6070 6075 6080  
 Asp Ser Gly Gln Tyr Met Cys Phe Ala Ala Ser Ala Ala Gly Asn Cys  
 6085 6090 6095  
 Ser Thr Leu Gly Lys Ile Leu Val Gln Val Pro Pro Arg Phe Val Asn  
 6100 6105 6110  
 Lys Val Arg Ala Ser Pro Phe Val Glu Gly Glu Asp Ala Gln Phe Thr  
 6115 6120 6125  
 Cys Thr Ile Glu Gly Ala Pro Tyr Pro Gln Ile Arg Trp Tyr Lys Asp

6130	6135	6140
Gly Ala Leu Leu Thr Thr	Gly Asn Lys Phe Gln Thr Leu Ser Glu Pro	
6145	6150	6155
Arg Ser Gly Leu Leu Val Leu Val Ile Arg Ala Ala Ser Lys Glu Asp		6160
	6165	6170
Leu Gly Leu Tyr Glu Cys Glu Leu Val Asn Arg Leu Gly Ser Ala Arg		6175
	6180	6185
Ala Ser Ala Glu Leu Arg Ile Gln Ser Pro Met Leu Gln Ala Gln Glu		6190
	6195	6200
Gln Cys His Arg Glu Gln Leu Val Ala Ala Val Glu Asp Thr Thr Leu		6205
	6210	6215
Glu Arg Ala Asp Gln Glu Val Thr Ser Val Leu Lys Arg Leu Leu Gly		6220
6225	6230	6235
Pro Lys Ala Pro Gly Pro Ser Thr Gly Asp Leu Thr Gly Pro Gly Pro		6240
	6245	6250
Cys Pro Arg Gly Ala Pro Ala Leu Gln Glu Thr Gly Ser Gln Pro Pro		6255
	6260	6265
Val Thr Gly Thr Ser Glu Ala Pro Ala Val Pro Pro Arg Val Pro Gln		6270
	6275	6280
Pro Leu Leu His Glu Gly Pro Glu Gln Glu Pro Glu Ala Ile Ala Arg		6285
	6290	6295
Ala Gln Glu Trp Thr Val Pro Ile Arg Met Glu Gly Ala Ala Trp Pro		6300
6305	6310	6315
Gly Ala Gly Thr Gly Glu Leu Leu Trp Asp Val His Ser His Val Val		6320
	6325	6330
Arg Glu Thr Thr Gln Arg Thr Tyr Thr Tyr Gln Ala Ile Asp Thr His		6335
	6340	6345
Thr Ala Arg Pro Pro Ser Met Gln Val Thr Ile Glu Asp Val Gln Ala		6350
	6355	6360
Gln Thr Gly Gly Thr Ala Gln Phe Glu Ala Ile Ile Glu Gly Asp Pro		6365
6370	6375	6380
Gln Pro Ser Val Thr Trp Tyr Lys Asp Ser Val Gln Leu Val Asp Ser		6385
6385	6390	6395
Thr Arg Leu Ser Gln Gln Gln Glu Gly Thr Thr Tyr Ser Leu Val Leu		6400
	6405	6410
Arg His Val Ala Ser Lys Asp Ala Gly Val Tyr Thr Cys Leu Ala Gln		6415
	6420	6425
Asn Thr Gly Gly Gln Val Leu Cys Lys Ala Glu Leu Leu Val Leu Gly		6430
6435	6440	6445
Gly Asp Asn Glu Pro Asp Ser Glu Lys Gln Ser His Arg Arg Lys Leu		6450
	6455	6460
His Ser Phe Tyr Glu Val Lys Glu Glu Ile Gly Arg Gly Val Phe Gly		6465
6465	6470	6475
Phe Val Lys Arg Val Gln His Lys Gly Asn Lys Ile Leu Cys Ala Ala		6480
	6485	6490
Lys Phe Ile Pro Leu Arg Ser Arg Thr Arg Ala Gln Ala Tyr Arg Glu		6495
	6500	6505
Arg Asp Ile Leu Ala Ala Leu Ser His Pro Leu Val Thr Gly Leu Leu		6510
	6515	6520
Asp Gln Phe Glu Thr Arg Lys Thr Leu Ile Leu Ile Leu Glu Leu Cys		6525
6530	6535	6540
Ser Ser Glu Glu Leu Leu Asp Arg Leu Tyr Arg Lys Gly Val Val Thr		6545
	6550	6555
Glu Ala Glu Val Lys Val Tyr Ile Gln Gln Leu Val Glu Gly Leu His		6560
	6565	6570
Tyr Leu His Ser His Gly Val Leu His Leu Asp Ile Lys Pro Ser Asn		6575
	6580	6585
Ile Leu Met Val His Pro Ala Arg Glu Asp Ile Lys Ile Cys Asp Phe		6590
	6595	6600
Gly Phe Ala Gln Asn Ile Thr Pro Ala Glu Leu Gln Phe Ser Gln Tyr		6605
6610	6615	6620

Gly Ser Pro Glu Phe Val Ser Pro Glu Ile Ile Gln Gln Asn Pro Val  
 6625 6630 6635 6640  
 Ser Glu Ala Ser Asp Ile Trp Ala Met Gly Val Ile Ser Tyr Leu Ser  
 6645 6650 6655  
 Leu Thr Cys Ser Ser Pro Phe Ala Gly Glu Ser Asp Arg Ala Thr Leu  
 6660 6665 6670  
 Leu Asn Val Leu Glu Gly Arg Val Ser Trp Ser Ser Pro Met Ala Ala  
 6675 6680 6685  
 His Leu Ser Glu Asp Ala Lys Asp Phe Ile Lys Ala Thr Leu Gln Arg  
 6690 6695 6700  
 Ala Pro Gln Ala Arg Pro Ser Ala Ala Gln Cys Leu Ser His Pro Trp  
 6705 6710 6715 6720  
 Phe Leu Lys Ser Met Pro Ala Glu Glu Ala His Phe Ile Asn Thr Lys  
 6725 6730 6735  
 Gln Leu Lys Phe Leu Leu Ala Arg Ser Arg Trp Gln Arg Ser Leu Met  
 6740 6745 6750  
 Ser Tyr Lys Ser Ile Leu Val Met Arg Ser Ile Pro Glu Leu Leu Arg  
 6755 6760 6765  
 Gly Pro Pro Asp Ser Pro Ser Leu Gly Val Ala Arg His Leu Cys Arg  
 6770 6775 6780  
 Asp Thr Gly Gly Ser Ser Ser Ser Ser Ser Ser Asp Asn Glu Leu  
 6785 6790 6795 6800  
 Ala Pro Phe Ala Arg Ala Lys Ser Leu Pro Pro Ser Pro Val Thr His  
 6805 6810 6815  
 Ser Pro Leu Leu His Pro Arg Gly Phe Leu Arg Pro Ser Ala Ser Leu  
 6820 6825 6830  
 Pro Glu Glu Ala Glu Ala Ser Glu Arg Ser Thr Glu Ala Pro Ala Pro  
 6835 6840 6845  
 Pro Ala Ser Pro Glu Gly Ala Gly Pro Pro Ala Ala Gln Gly Cys Val  
 6850 6855 6860  
 Pro Arg His Ser Val Ile Arg Ser Leu Phe Tyr His Gln Ala Gly Glu  
 6865 6870 6875 6880  
 Ser Pro Glu His Gly Ala Leu Ala Pro Gly Ser Arg Arg His Pro Ala  
 6885 6890 6895  
 Arg Arg Arg His Leu Leu Lys Gly Gly Tyr Ile Ala Gly Ala Leu Pro  
 6900 6905 6910  
 Gly Leu Arg Glu Pro Leu Met Glu His Arg Val Leu Glu Glu Glu Ala  
 6915 6920 6925  
 Ala Arg Glu Glu Gln Ala Thr Leu Leu Ala Lys Ala Pro Ser Phe Glu  
 6930 6935 6940  
 Thr Ala Leu Arg Leu Pro Ala Ser Gly Thr His Leu Ala Pro Gly His  
 6945 6950 6955 6960  
 Ser His Ser Leu Glu His Asp Ser Pro Ser Thr Pro Arg Pro Ser Ser  
 6965 6970 6975  
 Glu Ala Cys Gly Glu Ala Gln Arg Leu Pro Ser Ala Pro Ser Gly Gly  
 6980 6985 6990  
 Ala Pro Ile Arg Asp Met Gly His Pro Gln Gly Ser Lys Gln Leu Pro  
 6995 7000 7005  
 Ser Thr Gly Gly His Pro Gly Thr Ala Gln Pro Glu Arg Pro Ser Pro  
 7010 7015 7020  
 Asp Ser Pro Trp Gly Gln Pro Ala Pro Phe Cys His Pro Lys Gln Gly  
 7025 7030 7035 7040  
 Ser Ala Pro Gln Glu Gly Cys Ser Pro His Pro Ala Val Ala Pro Cys  
 7045 7050 7055  
 Pro Pro Gly Ser Phe Pro Pro Gly Ser Cys Lys Glu Ala Pro Leu Val  
 7060 7065 7070  
 Pro Ser Ser Pro Phe Leu Gly Gln Pro Gln Ala Pro Pro Ala Pro Ala  
 7075 7080 7085  
 Lys Ala Ser Pro Pro Leu Asp Ser Lys Met Gly Pro Gly Asp Ile Ser  
 7090 7095 7100  
 Leu Pro Gly Arg Pro Lys Pro Gly Pro Cys Ser Ser Pro Gly Ser Ala

7105	7110	7115	7120
Ser Gln Ala Ser Ser Ser Gln Val Ser Ser Leu Arg Val Gly Ser Ser			
	7125	7130	7135
Gln Val Gly Thr Glu Pro Gly Pro Ser Leu Asp Ala Glu Gly Trp Thr			
	7140	7145	7150
Gln Glu Ala Glu Asp Leu Ser Asp Ser Thr Pro Thr Leu Gln Arg Pro			
	7155	7160	7165
Gln Glu Gln Ala Thr Met Arg Lys Phe Ser Leu Gly Gly Arg Gly Gly			
	7170	7175	7180
Tyr Ala Gly Val Ala Gly Tyr Gly Thr Phe Ala Phe Gly Gly Asp Ala			
7185	7190	7195	7200
Gly Gly Met Leu Gly Gln Gly Pro Met Trp Ala Arg Ile Ala Trp Ala			
	7205	7210	7215
Val Ser Gln Ser Glu Glu Glu Glu Gln Glu Glu Ala Arg Ala Glu Ser			
	7220	7225	7230
Gln Ser Glu Glu Gln Gln Glu Ala Arg Ala Glu Ser Pro Leu Pro Gln			
	7235	7240	7245
Val Ser Ala Arg Pro Val Pro Glu Val Gly Arg Ala Pro Thr Arg Ser			
	7250	7255	7260
Ser Pro Glu Pro Thr Pro Trp Glu Asp Ile Gly Gln Val Ser Leu Val			
7265	7270	7275	7280
Gln Ile Arg Asp Leu Ser Gly Asp Ala Glu Ala Ala Asp Thr Ile Ser			
	7285	7290	7295
Leu Asp Ile Ser Glu Val Asp Pro Ala Tyr Leu Asn Leu Ser Asp Leu			
	7300	7305	7310
Tyr Asp Ile Lys Tyr Leu Pro Phe Glu Phe Met Ile Phe Arg Lys Val			
	7315	7320	7325
Pro Lys Ser Ala Gln Pro Glu Pro Pro Ser Pro Met Ala Glu Glu Glu			
	7330	7335	7340
Leu Ala Glu Phe Pro Glu Pro Thr Trp Pro Trp Pro Gly Glu Leu Gly			
7345	7350	7355	7360
Pro His Ala Gly Leu Glu Ile Thr Glu Glu Ser Glu Asp Val Asp Ala			
	7365	7370	7375
Leu Leu Ala Glu Ala Ala Val Gly Arg Lys Arg Lys Trp Ser Ser Pro			
	7380	7385	7390
Ser Arg Ser Leu Phe His Phe Pro Gly Arg His Leu Pro Leu Asp Glu			
	7395	7400	7405
Pro Ala Glu Leu Gly Leu Arg Glu Arg Val Lys Ala Ser Val Glu His			
	7410	7415	7420
Ile Ser Arg Ile Leu Lys Gly Arg Pro Glu Gly Leu Glu Lys Glu Gly			
7425	7430	7435	7440
Pro Pro Arg Lys Lys Pro Gly Leu Ala Ser Phe Arg Leu Ser Gly Leu			
	7445	7450	7455
Lys Ser Trp Asp Arg Ala Pro Thr Phe Leu Arg Glu Leu Ser Asp Glu			
	7460	7465	7470
Thr Val Val Leu Gly Gln Ser Val Thr Leu Ala Cys Gln Val Ser Ala			
	7475	7480	7485
Gln Pro Ala Ala Gln Ala Thr Trp Ser Lys Asp Gly Ala Pro Leu Glu			
	7490	7495	7500
Ser Ser Ser Arg Val Leu Ile Ser Ala Thr Leu Lys Asn Phe Gln Leu			
7505	7510	7515	7520
Leu Thr Ile Leu Val Val Val Ala Glu Asp Leu Gly Val Tyr Thr Cys			
	7525	7530	7535
Ser Val Ser Asn Ala Leu Gly Thr Val Thr Thr Thr Gly Val Leu Arg			
	7540	7545	7550
Lys Ala Glu Arg Pro Ser Ser Ser Pro Cys Pro Asp Ile Gly Glu Val			
	7555	7560	7565
Tyr Ala Asp Gly Val Leu Leu Val Trp Lys Pro Val Glu Ser Tyr Gly			
	7570	7575	7580
Pro Val Thr Tyr Ile Val Gln Cys Ser Leu Glu Gly Gly Ser Trp Thr			
7585	7590	7595	7600

Thr Leu Ala Ser Asp Ile Phe Asp Cys Cys Tyr Leu Thr Ser Lys Leu  
 7605 7610 7615  
 Ser Arg Gly Gly Thr Tyr Thr Phe Arg Thr Ala Cys Val Ser Lys Ala  
 7620 7625 7630  
 Gly Met Gly Pro Tyr Ser Ser Pro Ser Glu Gln Val Leu Leu Gly Gly  
 7635 7640 7645  
 Pro Ser His Leu Ala Ser Glu Glu Glu Ser Gln Gly Arg Ser Ala Gln  
 7650 7655 7660  
 Pro Leu Pro Ser Thr Lys Thr Phe Ala Phe Gln Thr Gln Ile Gln Arg  
 7665 7670 7675 7680  
 Gly Arg Phe Ser Val Val Arg Gln Cys Trp Glu Lys Ala Ser Gly Arg  
 7685 7690 7695  
 Ala Leu Ala Ala Lys Ile Ile Pro Tyr His Pro Lys Asp Lys Thr Ala  
 7700 7705 7710  
 Val Leu Arg Glu Tyr Glu Ala Leu Lys Gly Leu Arg His Pro His Leu  
 7715 7720 7725  
 Ala Gln Leu His Ala Ala Tyr Leu Ser Pro Arg His Leu Val Leu Ile  
 7730 7735 7740  
 Leu Glu Leu Cys Ser Gly Pro Glu Leu Leu Pro Cys Leu Ala Glu Arg  
 7745 7750 7755 7760  
 Ala Ser Tyr Ser Glu Ser Glu Val Lys Asp Tyr Leu Trp Gln Met Leu  
 7765 7770 7775  
 Ser Ala Thr Gln Tyr Leu His Asn Gln His Ile Leu His Leu Asp Leu  
 7780 7785 7790  
 Arg Ser Glu Asn Met Ile Ile Thr Glu Tyr Asn Leu Leu Lys Val Val  
 7795 7800 7805  
 Asp Leu Gly Asn Ala Gln Ser Leu Ser Gln Glu Lys Val Leu Pro Ser  
 7810 7815 7820  
 Asp Lys Phe Lys Asp Tyr Leu Glu Thr Met Ala Pro Glu Leu Leu Glu  
 7825 7830 7835 7840  
 Gly Gln Gly Ala Val Pro Gln Thr Asp Ile Trp Ala Ile Gly Val Thr  
 7845 7850 7855  
 Ala Phe Ile Met Leu Ser Ala Glu Tyr Pro Val Ser Ser Glu Gly Ala  
 7860 7865 7870  
 Arg Asp Leu Gln Arg Gly Leu Arg Lys Gly Leu Val Arg Leu Ser Arg  
 7875 7880 7885  
 Cys Tyr Ala Gly Leu Ser Gly Gly Ala Val Ala Phe Leu Arg Ser Thr  
 7890 7895 7900  
 Leu Cys Ala Gln Pro Trp Gly Arg Pro Cys Ala Ser Ser Cys Leu Gln  
 7905 7910 7915 7920  
 Cys Pro Trp Leu Thr Glu Glu Gly Pro Ala Cys Ser Arg Pro Ala Pro  
 7925 7930 7935  
 Val Thr Phe Pro Thr Ala Arg Leu Arg Val Phe Val Arg Asn Arg Glu  
 7940 7945 7950  
 Lys Arg Arg Ala Leu Leu Tyr Lys Arg His Asn Leu Ala Gln Val Arg  
 7955 7960 7965

<210> 6

<211> 23907

<212> DNA

<213> Homo sapiens

<400> 6

atggatcagc cacagttcag cggggcgccc cgctttctca cccggcccaa ggccttcgtg 60  
 gtgtcgggtgg gcaaggacgc caccctcagc tgccagatcg tgggtaatcc caccgccacag 120  
 gtgagctggg agaaggacca gcagccgggtg acggccggcg cgcgcttcctg tctggcccag 180  
 gacggcgacc tctaccgcct cactatcctg gacctggcgc tgggcgacag tgggcaatac 240  
 gtgtgccgcg cgcgcaatgc cataggcgag gccttcgctg ccgtgggcct gcaggtggac 300  
 gcggaggccg cgtgcgccga gcaggcgccg cacttcctgc tgcggcccac gtccatccgc 360  
 gtgcgcgagg gctcagaggc caccttcgcg tgccgcgtgg gtggctcccc gaggcggca 420



caggccgagg	cgggggccat	tgccacgctg	agctgcgagg	tggcccaggc	ccagacagag	4140
gtgacgtggt	acaaggacgg	gaagaagctg	agctccagct	cgaaggttcg	aatggagggt	4200
gtgggctgca	cacggaggct	ggtggtgcag	caggcatgcc	aggcggacac	cggggagtat	4260
agctgcgagg	ccgggggcca	gcggctctcc	ttcagcctgg	acgtggcaga	gcccgaaggtg	4320
gtgttttgcca	aggagcagcc	agtgcacagg	gaggtgcagg	cccaggcggg	ggccagcacc	4380
acactcagct	ccgaggtggc	tcaggccag	acggagggtga	tgtggtacaa	ggacgggaag	4440
aagctgagct	tcagctcgaa	agtgcgcatg	gcggatgctg	gctgcacacg	gaggctggtg	4500
gtgcagcagg	cgggccaggc	ggacgccggg	gagtagacgt	gcgaggcggg	gagccagcgg	4560
ctctccttcc	acctgcacgt	ggcagagccc	aaggcgggtg	ttgccaagga	gcagccagcg	4620
agcagggagg	tgcaggctga	ggcggggacc	agtgccacgc	tgagctgcga	ggtggcccag	4680
gcccagacag	aggtgacgtg	gtacaaggac	gggaagaaac	tgagctccag	ctcgaaagtg	4740
cgaatggagg	ccgtgggctg	cacacggagg	ctggtggtgc	aggaggcagg	ccaggcggac	4800
gccggggagt	acagctgcaa	ggccggggat	cagcggctgt	ccttcacact	gcacgtggca	4860
gagcccaagg	tgggtgttgc	caaggagcag	ccagcacaca	gggagggtga	ggctgaggcg	4920
ggggccagtg	ccacgctgag	ctgcgagggtg	gcccaggccc	agacagaggt	gacgtggtac	4980
aaggatggga	agaagctgag	ttccagctcg	aaagtgcgcg	tggaggccgt	gggctgcaca	5040
cggaggctgg	tgggtgcagca	ggcggggccag	gcggatgctg	gggagtacag	ctgtgaggcg	5100
ggggggccaac	ggctgtcctt	ccgcctgcac	gtggcagagc	tggagcccca	aatttcagag	5160
agaccctgcc	gcagggagcc	tctggtgggtc	aaggagcatg	aagacatcat	cctgaccgcc	5220
acactggcca	caccctctgc	ggccacgggtg	acctgggtca	aggatggtgt	ggagattcgc	5280
cgcagcaagc	ggcatgagac	agccagccag	ggggacaccc	acaccctgac	cgtgcatggc	5340
gcccagggttc	tggacagcgc	catctacagc	tgccgtgtgg	gcgcagaggg	gcaggacttc	5400
ccagtgcagg	tggaaagaggt	ggccgccaaag	ttctgcccggc	tgctggagcc	tgtgtgcggc	5460
gagctgggtg	gcacggtgac	actggcctgc	gagctaagcc	cagcgtgtgc	agaggtggtg	5520
tggcgctgcg	gcaaacacgca	gcctcgggtg	ggcaagcgct	tccagatggt	ggccgagggg	5580
cccgtgcgct	cactcactgt	gttggggctg	cgccgacagg	acgcagggga	gtacgtgtgt	5640
gagagccgtg	atgaccacac	cagtgcgcag	ctcacctca	gtgtgccccg	agtgggtgaag	5700
tttatgtctg	ggctgagcac	cgtgggtcgca	gaggagggcg	gcgaggccac	cttcagctgc	5760
gtggtgtccc	ccagtgatgt	ggcagtcgtg	tggttccggg	acggtgccct	gcttcagccc	5820
agcgagaagt	ttgccatata	acagagtggc	gccagccaca	gcctgaccat	ctcagacctg	5880
gtgctggagg	acgcggggcca	gatcacctgt	gaggctgagg	gcgcctcatc	ctctgctgcc	5940
ctgagggtcc	gagagggccc	tgtgctgttc	aaaaagaagc	tggagccgca	gacggtggag	6000
gagcggagct	cggtagaccg	ggaggtggag	ctgacgcggc	cgtggccgga	gctgaggtgg	6060
acacggaaacg	cgacggccct	ggcgcgggga	aagacagttg	agatccacgc	cgagggcgcc	6120
cgccaccgcc	tggttctgca	caacgtaggt	tttgccgacc	gtggcttctt	tggctgcgag	6180
acgccggatg	acaagacaca	ggccaaactc	accgtggaga	tgcgccagggt	acggctcgta	6240
cggggcctgc	aggcagtgga	ggcacgggag	cagggcacgg	ctaccatgga	ggtgcagctg	6300
tcgcatgcgg	acgtggatgg	cagctggact	cgtgacggtc	tgcggttcca	gcagggggccc	6360
acgtgccacc	tggctgtgcg	gggccccatg	cacaccctca	cactctcggg	gctgcggcca	6420
gaggatagtg	gccttatggt	cttcaaggcc	gaaggagtgc	acacgtcggc	gcggctcgtg	6480
gtcacccgagc	ttcccgtgag	cttcagccgc	ccgctgcagg	acgtggtgac	cactgagaag	6540
gagaaggtta	ccctggagtg	cgagctgtgc	cgctctaagt	tggatgtgcg	ctggctgaag	6600
gacggtgtgg	agctgcgggc	aggcaagacg	atggccatcg	cagcccaggg	cgccctgcag	6660
agcctcacca	tttaccgggtg	cgagttcgcg	gatcaggagg	tgtatgtgtg	tgatgccccat	6720
gatgcccaga	gctctgcctc	cgtgaaggta	caagggaagga	catacactct	catctaccgg	6780
agagtccttg	cggaagatgc	aggagagatc	caattttag	ccgaaaatgc	agaatcgcg	6840
gcccagctcc	gagtgaagga	gctgccagtg	accctcgtgc	gcccgtcgcg	ggacaagatt	6900
gccatggaga	agcaccgcgg	tgtgctggag	tgtcagggtg	ccggggccag	cgcccagggtg	6960
cggtggttca	agggcagttca	ggagctgcag	cccggggcca	agtagcagct	ggtcagtgat	7020
ggcctctacc	gcaagctgat	catcagtgat	gtccacgcag	aggacgagga	cacctacacc	7080
tgtgacgcgg	gtgatgtcaa	gaccagtgca	cagttcttcg	tggaaagagca	atccatcacc	7140
attgtgcggg	gtctgcagga	cgtgacagtg	atggagcccc	ctcctgcctg	gtttgagtgt	7200
gagacctcca	tcccctcagt	gcggccacct	aagtggctcc	tggggaagac	ggtgttgcag	7260
gctgggggga	acgtgggcct	ggagcaggag	ggcacgggtg	accggctgat	gctgcggcgg	7320
acctgctcca	ccatgaccgg	gcccgtgcac	ttcaccttg	gcaagtcgcg	ctcctctgcc	7380
cgctggtgg	tctcagacat	ccccgtagtc	ctcacacggc	cgttgagacc	caagacaggg	7440
cgtgagctgc	agtcagtgg	cctgtcctgc	gacttccggc	cagcccccaa	ggctgtgcag	7500
tggtagaagg	atgacacgcc	cctgtctccc	tctgagaagt	ttaagatgag	cctggagggt	7560
cagatggctg	agtcgcgcac	cctccggctc	atgcctgctg	atgctggtgt	ctaccgggtgc	7620
caggcgggca	gtgcccacag	cagcactgag	gtcactgtgg	aagcgcggga	ggtgacagtg	7680
acagggccgc	tacaggatgc	agaggccacg	gaggagggtc	gggccagctt	ctcctgtgag	7740





cctgccagat	tcatagaaga	tgtgaaaaac	caggaggcca	gagaaggggc	cacggccgtg	11460
ctgcaatgtg	agctgagcaa	ggcggccccc	gtggagtggg	ggaaggggtc	tgagaccctc	11520
agaggtgggg	acagatacag	cctgaggcag	gatgggacca	gatgtgagct	gcagattcat	11580
ggcctgtctg	tggcagacac	tggggagtac	tcgtgtgtgt	gcgggcagga	gaggacctcg	11640
gccacactca	ccgtcagggc	cccacagcca	gtgttcctgg	agccgctgca	gagtctgcag	11700
gcggaggagg	gctccacggc	cacctgcag	tgtgagctgt	ctgagcccac	tgctacagtg	11760
gtctggagca	aggggtggcct	gcagctgcag	gccaatgggc	gcccggagcc	acggcttcag	11820
ggctgcaccg	cggagctggg	gttacaggac	ctacaacgtg	aagacactgg	cgaatacact	11880
tgcacctgtg	gtctccaggg	caccagtgcc	acctcactg	tcacagctgc	gcctgtgcgg	11940
ttcctccgag	agctgcagca	ccaggagggtg	gatgaggagg	gcaccgcaca	cttatgctgc	12000
gagctgagcc	ggcgggtgtc	gagcgtggag	tggcgcaagg	gtctccctaca	gctcttccct	12060
tgtgccaaagt	accagatggt	gcaggatggt	gcagctgcag	agctgctggt	acgcggagtg	12120
gagcaggagg	atgcgggtga	ctacacgtgt	gacacggggc	acacgcagag	catggccagc	12180
ctctctgtcc	gtgtccccag	gccaagtcc	aagaccgggc	ttcagagtct	ggagcaggag	12240
acaggtgaca	tagccgggtg	gtgctgtcag	ctgagtgtatg	cagagtcggg	ggcctgtggtg	12300
caatggctca	aggaggcgct	ggagctgcat	gcgggcccc	agtacgagat	gcggagccag	12360
ggggccacgc	gggagctgct	gatccacca	aggacaggcc	agacacggg	cgagtatgcc	12420
tgtgtgacag	gcggccagaa	aaccgctgcc	tcctcagggg	tcacagagcc	tgaggtgacc	12480
attgtacggg	ggctggttga	tgcggagggtg	acggccgatg	aggatgttga	gttcagctgt	12540
gaggtgtcca	ggctggagc	cacaggcgtg	cagtgggtgcc	tacagggcct	gccactgcaa	12600
agcaatgagg	tgacagaggt	ggctgtgcgg	gatggccgca	tcacaccct	gcggctgaag	12660
ggcgtgacgc	ccgaggacgc	tggcactgtc	tccttccatt	tgggaaacca	tgcttccctc	12720
gccagctca	ccgtcagagc	tcctgagggtg	accatcctgg	agcccctgca	ggacgtgcag	12780
ctcagttagg	gccaggatgc	cagcttccag	tgccggctat	ccagagcttc	aggccaggag	12840
gcccgtggg	cttttaggag	ggcgccacg	caggccaacg	agatgaatga	catcactgtg	12900
gagcagggca	cactccacct	gtcaccctg	cacaagggtga	cccttgagga	tgctggaact	12960
gtcagtttcc	acgtgggcac	gtgtagctct	gaggccagc	tgaaagtcac	agccaagaac	13020
acggtggtgc	gggggctgga	gaatgtggag	gcgctggagg	gcggcgaggc	gctgttcgag	13080
tgccagctgt	cccagcccga	gggtggccgc	cacacctggc	tgctggacga	cgaacccgtg	13140
cgcacctcgg	agaacgcgca	gggtggtcttc	ttcgagaacg	gcctgcgcca	cctgctgctg	13200
ctcaaaaact	tgcggccaca	agacagctgc	cgggtgacct	tcctggctgg	ggatatggtg	13260
acgtccgcat	tcctcacggg	ccgaggctgg	cgctgggaga	tcctggagcc	tctgaaaaac	13320
gcggcggtcc	gggcgggcgc	acaggcacgc	ttcacctgca	cgctcagcga	ggcggtgccc	13380
gtgggagagg	cgctctggta	catcaatggc	gcgacagtgc	agccggatga	cagcgactgg	13440
actgtcaccc	ccgacggcag	tcaccaagcc	ctactgtgc	gcagcgccca	gccccaccac	13500
gccggggagg	tcaccttgcg	ttgccgcgac	gccgtggcct	ctgcacggct	caccgtgctg	13560
ggcctccctg	atcccccaga	ggatgctgag	gtgggtggctc	acagcagcca	cactgtgaca	13620
ctgtcttggg	cagctcccat	gagtgatgga	ggcgggtggc	tctgtggcta	ccgcgtggag	13680
gtgaaggagg	ggggccacagg	ccagtggcgg	ctgtgccacg	agctgggtgc	tggaacccag	13740
tgtgtggtgg	atggcctggc	ccccggggag	acctaccgct	tcctgtgtgc	agctgtgggc	13800
cctgtgggtg	ctggggaaac	ggttcacctg	ccccagacag	tgcggttgc	agagccaccg	13860
aagcctgtgc	ctccccagcc	ctcagccct	gagagccggc	aggtggcagc	tggtgaagat	13920
gtctctctgg	agcttgaggt	gggtggctgag	ctgtgtgagg	tcactgtgga	caagggaatg	13980
gagcgcatcc	agcccggtgg	gcggttcgag	gtggtctccc	agggtcggca	acagatgctg	14040
gtgatcaagg	gcttcacggc	agaagaccag	ggcgagtacc	actgtggcct	ggctcagggc	14100
tccatctgcc	ctgcggctgc	caccttccag	gtggcactga	gcccagcctc	tgtggatgag	14160
gccccctcagc	ccagcttgcc	ccccgaggca	gcccaggagg	gtgacctgca	cctactgtgg	14220
gaggccctgg	ctcgaaacg	tcgcatgagc	cgtgagccca	cgctggactc	cattagcgag	14280
ctgccagagg	aggacggccg	ctcgcagcgc	ctgccacagg	aggcagagga	gggtggcacct	14340
gatctctctg	aaggctactc	cacggccgat	gagctggccc	gcactggaga	tgctgacctc	14400
tcacacacca	gctctgatga	tgagtcccgg	gcaggcacc	cttccctggg	cacctacctc	14460
aagaaggctg	ggaggccagg	cacctcacca	ctggccagca	aggttggggc	cccagcagcc	14520
ccctctgtga	agccacagca	gcagcaggag	ccactggctg	ctgtgcgccc	accactggga	14580
gacctgagca	ccaaagacct	gggtgatccc	tcaatggaca	aggcagctgt	gaagatccag	14640
gctgccttta	agggctacaa	ggtccggaag	gagatgaagc	agcaggaagg	gcccattgttc	14700
tcccacacat	ttggggacac	cgaggcacag	gtgggggatg	ccctgcggct	ggagtgtgtc	14760
gtggccagca	aggcagatgt	gcgagcccg	tggtgaagg	atggtgtgga	gctgaccgat	14820
gggcggcacc	atcacatcgc	ccagcttggg	gatggcacct	gctctctgct	gatcgctggc	14880
ctggaccgtg	ctgatgctgg	tgctacacc	tgctcaggtga	gcaacaagtt	tgggcagggtg	14940
accacagtg	cctgtgtggt	ggtcagtgcc	tcagagagtg	aagccgagag	ctcctctggg	15000
ggtgagctgg	acgatgcctt	ccgcccggct	gcccgtcggc	tgaccggct	cttccgcacc	15060

aaaagtccgg	ctgaagtttc	agatgaggag	ctcttcctga	gtgcagacga	gggccctgca	15120
gagccagagg	agccccgcga	ctggcagaca	taccgcgaag	atgagcattt	catctgcate	15180
cgttttgagg	cgctcactga	ggccccccag	gcggtaactc	gcttccagga	gatgtttgcc	15240
acactgggca	ttgggggtgga	gatcaagctg	gtggaacagg	ggcctcggag	ggtagagatg	15300
tgcatacgca	aagagactcc	tgccccctgtg	gtgcctccag	agccattgcc	cagcctactg	15360
acttctgacg	ctgccccagt	gttcctgact	gagttgcaga	accaagaagt	gcaggatggg	15420
tatcctgtga	gctttgactg	cgtggtgaca	ggtcagccca	tgcccagtgt	gcgctgggtc	15480
aaggatggga	agttgttgga	ggaggatgat	cactacatga	ttaatgaaga	ccaacagggt	15540
ggccatcagc	tcatcatcac	agccgtgggtg	ccagcagaca	tgggctgcta	ccgctgcctg	15600
gccgagaaca	gcatgggtgt	ctcctccacc	aaggctgagc	tccgtgtgga	cttgacaagc	15660
acagactatg	acactgcagc	agatgccacg	gagtcctcat	cctacttcag	tgcccaaggc	15720
tacctgtcca	gccgggagca	ggagggaaca	gagtcaccca	ctgatgaggg	ccagctgccc	15780
caggtgggtg	aggagctgag	agacctccag	gtggccccctg	gcacacgcct	ggccaagtgc	15840
cagctcaagg	tgaaggtcta	ccctgtctccc	agattatact	ggttcaaaga	tggccagccc	15900
ctgaccgcat	ctgccacat	ccgcatgact	ggcaagaaga	tcttgacac	cctggagatc	15960
atctccgtca	ccggggagga	ctctggccag	tatgcagcct	atatcagcaa	tgccatgggt	16020
gctgcctact	cgtctgccc	gctgctgggt	cgaggccctg	atgagccaga	agagaagcct	16080
gcatcagatg	tgcatgagca	gctggtgccg	ccccgaatgc	tggagaggtt	cacccccaa	16140
aaagtgaaga	aaggctccag	catcaccttc	tctgtgaagg	tagaaggacg	cccgggtgcc	16200
accgtgcact	ggctcaggga	ggaggctgag	agaggcgtgc	tgtggatttg	ccctgacaca	16260
ccgggctaca	ccgtggccag	ctctgcgcag	cagcacagcc	tggctctgct	ggacgtgggc	16320
cggcagcacc	agggcaccta	cacatgcatt	gccagcaacg	ctgccggcca	ggccctctgc	16380
tccgacgccc	tgacgtctc	gggcctgctt	aagggtggagg	agcaggagaa	agtgaaggaa	16440
gcgctgattt	ccactttcct	gcaggggacc	acacaagcca	tctcagcaca	ggggttggaa	16500
actgcgagtt	ttgctgacct	tggtgggcag	aggaagaag	agcctctggc	tgccaaggag	16560
gccctcggcc	acctgtccct	cgtgaggtg	ggcacagagg	agttcctgca	gaaactgacc	16620
tcccagatca	ctgagatggt	atcggccaa	atcacgcagg	ccaagctgca	ggtgcccgga	16680
ggtgacagtg	atgaggactc	caagacacca	tctgcatccc	cccgccatgg	ccgatcacgg	16740
ccatcctcca	gcatccagga	gtcttctca	gagtcagagg	acggcgatgc	ccgagggcag	16800
atctttgaca	tctacgtggt	caccgctgac	tacctgcccc	taggggctga	gcaggatgcc	16860
atcacgctgc	gggaaggcca	gtatgtggag	gtcctggatg	cagcccaccc	actgcgctgg	16920
cttgtccgca	ccaagcccac	caagtccagc	ccctcacggc	agggctgggt	gtcaccagcc	16980
tacctggaca	ggaggctcaa	gtgtcacct	gagtgggggg	ccgctgaggc	ccctgagttc	17040
cctggggagg	ctgtgtctga	agacgaatac	aaggcaaggc	tgagctctgt	gatccaggag	17100
ctgctgagtt	ctgagcaggc	cttcgtggag	gagctgcagt	tctgcagag	ccaccacctg	17160
cagcacctgg	agcgtgccc	ccacgtgccc	atagccgtgg	ccggccagaa	ggcagtcate	17220
ttccgcaatg	tgccggacat	cggccgcttc	cacagcagct	tctgcagga	gttgacagc	17280
tgccgacacg	acgacgacgt	ggccatgtgc	ttcatcaaga	accaggcggc	ctttgagcag	17340
tacctggagt	tccgtggtgg	gcgtgtgcag	gctgagtcgg	tggctcgtcag	cacggccatc	17400
caggagttct	acaagaaata	cgccgaggag	gccctgttgg	caggggaccc	ctctcagccc	17460
ccgccaccac	ctctgcagca	ctacctggag	cagccagtgg	agcgggtgca	gcgctaccag	17520
gccttgctga	aggagttgat	ccgcaacaag	gcgcggaaca	gacagaactg	cgcgctgctg	17580
gagcaggcct	atgccgtggt	gtctgccctg	ccacagcgcg	ctgagaacaa	gctgcacgtg	17640
tccctcatgg	agaactaccc	aggcacccctg	gaggccctgg	gcgagcccat	ccgccagggc	17700
cacttcatcg	tgtgggaggg	tgcaccgggg	gcccgcctgc	cctggaaggg	ccacaaccgt	17760
cacgtgttcc	tcttcgcgaa	ccacctggta	atctgcaagc	cccggcgaga	ctcccgcacc	17820
gataccgtca	gctacgtggt	ccggaacatg	atgaagctga	gcagcatcga	cctgaacgac	17880
caggtggagg	gggatgaccg	cgcccttcag	gtgtggcagg	agcgggagga	ctcgggtgcg	17940
aagtacctgc	tgcaggcacg	gacagccatt	atcaagagct	cgtgggtgaa	ggagatctgt	18000
ggcatccagc	agcgtctggc	cctgcctgtg	tggcgccccc	cggactttga	agaggagctg	18060
gccgactgca	cagccgagct	gggtgagaca	gtcaagctgg	cctgccgcgt	gacgggcaca	18120
cccaagcctg	tcatcagctg	gtacaaagat	gggaaagcag	tgcaggtgga	ccccaccac	18180
atcctcattg	aagaccctga	tggctcgtgt	gcactcatcc	tggacagcct	gaccgggtgtg	18240
gactctggcc	agtacatgtg	cttcgcggcc	agcgcgcgtg	gcaactgcag	tacctggggc	18300
aagatcctgg	tgcaagtccc	accacggttc	gtgaacaagg	tccgggcctc	accctttgtg	18360
gagggagagg	acgcccagtt	cacctgcacc	atcgaaggcg	ccccgtaccc	gcagatcagg	18420
tggtacaagg	acggggccct	gctgaccact	ggcaacaagt	tccagacact	gagtgagcct	18480
cgcagcggcc	tgctagtgtc	ggtgatccgg	gcggccagca	aggaggacct	ggggctctac	18540
gagtgtagcc	tggtagaacc	gctgggcttc	gcgcgggcta	gtgcggagct	gcgcattcag	18600
agccccatgc	tgcaggccca	ggagcagctg	cacagggagc	agctcgtggc	tgcagtggaa	18660
gacaccaccc	tggagcgagc	ggaccaggag	gtcacatctg	tcctgaagag	actgctgggc	18720

cccaaggcgc	caggccccctc	cacagggggac	ctcactggcc	ctggccccctg	ccccagggggg	18780
gcacccgcac	tccaggaaac	cggctcccag	ccccagtc	ccggaacttc	ggaggcacct	18840
gccgtgcccc	cgaggggtg	acagccccctc	ctccacgaag	gcccagagca	ggagccggag	18900
gccattgcca	gagcccagga	atggactgtg	ccatttcgga	tggaggggtg	agcctggccc	18960
ggggcaggca	caggggagct	gctctggggac	gtccacagcc	acgtgggtcag	agagaccaca	19020
cagaggacct	acacatacca	ggccatcgac	acgcacaccg	cacggccccc	atccatgcag	19080
gtaaccatcg	aggatgtgca	ggcacagaca	ggcggaacgg	cccaattcga	ggctatcatt	19140
gagggcgacc	cacagccctc	ggtgacctgg	tacaaggaca	gcgtccagct	ggtggacagc	19200
acccggctta	gccagcagca	agaaggcacc	acatactccc	tgggtgctgag	gcatgtggcc	19260
tcgaaggatg	ccggcgctta	cacctgcctg	gccccaaaaca	ctgggtggcca	ggtgctctgc	19320
aaggcagagc	tgctgggtgct	tggggggggac	aatgagccgg	actcagagaa	gcaaagccac	19380
cggaggaagc	tgcactcctt	ctatgaggtc	aaggaggaga	ttggaagggg	cgtgttttggc	19440
ttcgtaaaaa	gagtgcagca	caaaggaaac	aagatcttgt	gcgtcgccaa	gttcatcccc	19500
ctacggagca	gaactcgggc	ccaggcatatc	agggagcgag	acatcctggc	cgcgctgagc	19560
caccgcgtgg	tcacggggct	gctggaccag	tttgagaccc	gcaagaccct	catcctcatc	19620
ctggagctgt	gctcatccga	ggagctgctg	gaccgcctgt	acaggaaggg	cgtgggtgacg	19680
gagggcgagg	tcaaggtcta	catccagcag	ctggtggagg	ggctgcacta	cctgcacagc	19740
catggcgctt	tccacctgga	cataaagccc	tctaaccatcc	tgatggtgca	tcctgcccgg	19800
gaagacatta	aaatctgcga	ctttggcttt	gcccagaaca	tcaccccagc	agagctgcag	19860
ttcagccagt	acggctcccc	tgagttcgtc	tcccccgaga	tcattccagca	gaaccctgtg	19920
agcgaagcct	ccgacatttg	ggccatgggt	gtcatctcct	acctcagcct	gacctgtctc	19980
tccccatttg	ccggcgagag	tgaccgtgcc	accctcctga	acgtcctgga	ggggcgcgctg	20040
tcattggagca	gccccatggc	tgcccacctc	agcgaagacg	ccaaagactt	catcaaggct	20100
acgtgcgaca	gagccccctc	ggccccggcct	agtgcggccc	agtgcctctc	ccacccctgg	20160
ttcctgaaat	ccatgcctgc	ggaggaggcc	cacttcacat	acaccaagca	gctcaagttc	20220
ctcctggccc	gaagtcgctg	gcagcgcttc	ctgatgagct	acaagtccat	cctgggtgatg	20280
cgctccatcc	ctgagctgct	gcggggcccca	cccgacagcc	cctccctcgg	cgtagcccg	20340
cacctctgca	gggacactgg	tggctcctcc	agtctcctct	cctcctctga	caacgagctc	20400
gccccatttg	cccgggctaa	gtcactgcca	ccctccccgg	tgacacactc	accactgctg	20460
cacccccggg	gcttccctgcg	gcccctcgcc	agcctgcctg	aggaagccga	ggccagtgag	20520
cgctccaccg	aggccccagc	tcggcctgca	tctcccagg	gtgccggggc	accggccggc	20580
cagggctgcy	tgccccggca	cagcgtcatc	cgcagcctgt	tctaccacca	ggcgggtgag	20640
agccctgagc	acggggccct	ggccccgggg	agcaggcgcc	acccggcccc	gcggcggcac	20700
ctgctgaagg	gcgggtacat	tgcgggggcg	ctgcaggcc	tgcgcgagcc	actgatggag	20760
caccgcgtgc	tggaggagga	ggccgcccag	gaggagcagg	ccaccctcct	ggccaaagcc	20820
ccctcattcg	agactgcctt	ccggctgcct	gcctctggca	cccacttggc	ccctggccac	20880
agccactccc	tggaaacatga	ctctccgagc	accccccgcc	cctcctcgga	ggcctgcggt	20940
gaggcacagc	gactgccttc	agccccctcc	ggggggggccc	ctatcaggga	catggggcac	21000
cctcagggct	ccaagcagct	tccatccact	ggtggccacc	caggcactgc	tcagccagag	21060
aggccatccc	cggacagccc	ttggggggcag	ccagcccctt	tctgccaccc	caagcagggg	21120
tctgcccccc	aggagggtcg	cagccccccc	ccagcagttg	ccccatgccc	tcctgggtcc	21180
ttccctccag	gatcttgcaa	agaggccccc	ttagtacct	caagcccctt	cttgggacag	21240
ccccaggcac	cccctgcccc	tgccaaagca	agcccccat	tggactctaa	gatggggcct	21300
ggagacatct	ctcttctctg	gaggccaaaa	cccgccccct	gcagttcccc	agggtcagcc	21360
tcccaggcga	gctcttccca	agtgagctcc	ctcagggtgg	gctcctccca	ggtgggcaca	21420
gagcctggcc	cctccctgga	tgcgaggggc	tggaccagg	aggctgagga	tctgtccgac	21480
tccacaccca	ccttgacagc	gcctcaggaa	caggcgacca	tgcgcaagtt	ctccctgggt	21540
ggtcgcgggg	gctacgcagg	cgtggctggc	tatggcacct	ttgccttttg	tggagatgca	21600
gggggcatgc	tggggcaggg	gcccattgtg	gccaggatag	cctgggctgt	gtcccagtcg	21660
gaggaggagg	agcaggagga	ggccagggct	gagtcacagt	cggaggagca	gcaggaggcc	21720
agggctgaga	gcccactgcc	ccaggtcagt	gcaaggcctg	tgcttgaggt	cggcagggct	21780
cccaccagga	gctctccaga	gcccacccca	tgggaggaca	tcgggacaggt	ctccctgggt	21840
cagatccggg	acctgtcagg	tgatgcggag	gcggccgaca	caatatccct	ggacatttcc	21900
gaggtggacc	ccgcctacct	caacctctca	gacctgtacg	atatcaagta	cctcccatte	21960
gagtttatga	tcttcaggaa	agtccccaag	tccgctcagc	cagagccgcc	ctcccccatg	22020
gctgaggagg	agctggccga	gttcccggag	cccacgtggc	cctggccagg	tgaactgggc	22080
ccccacgcag	gcctggagat	cacagaggag	tcagaggatg	tggacgcgct	gctggcagag	22140
gctgccgtgg	gcagggaagc	caagtgttcc	tcgccgtcac	gcagcctctt	ccacttccct	22200
gggaggcacc	tgccgctgga	tgagcctgga	gagctggggc	tgcgtagagag	agtgaaggcc	22260
tccgtggagc	acatctcccg	gatcctgaag	ggcaggccgg	aaggtctgga	gaaggagggg	22320
ccccccagga	agaagccagg	ccttgcctcc	ttccggctct	caggtctgaa	gagctgggac	22380

cgagcgccga	cattcctaag	ggagctctca	gatgagactg	tggtcctggg	ccagtcagtg	22440
acactggcct	gccaggtgtc	agcccagcca	gctgcccagg	ccacctggag	caaagacgga	22500
gcccccttg	agagcagcag	ccgtgtcctc	atctctgcca	ccctcaagaa	cttccagctt	22560
ctgaccatcc	tgggtggtgt	ggctgaggac	ctgggtgtgt	acacctgcag	cgtgagcaat	22620
gcgctgggga	cagtgaccac	cacgggcgtc	ctccggaagg	cagagcgccc	ctcatcttcg	22680
ccatgcccgg	atatcgggga	ggtgtacgcg	gatgggggtg	tgctggtctg	gaagcccgtg	22740
gaatcctacg	gccctgtgac	ctacattgtg	cagtgcagcc	tagaaggcgg	cagctggacc	22800
acactggcct	ccgacatctt	tgactgctgc	tacctgacca	gcaagctctc	ccgggggtggc	22860
acctacacct	tccgcacggc	atgtgtcagc	aaggcaggaa	tgggtcccta	cagcagcccc	22920
tcggagcaag	tcttcctggg	agggcccagc	cacctggcct	ctgaggagga	gagccagggg	22980
cggtcagccc	aacccttgcc	cagcacaaag	accttcgcat	tccagacaca	gatccagagg	23040
ggccgcttca	gcgtggtgcg	gcaatgctgg	gagaaggcca	gcgggcgggc	gctggccgcc	23100
aagatcatcc	cctaccaccc	caaggacaag	acagcagtg	tgcgcggaata	cgaggccctc	23160
aagggcctgc	gccaccgcga	cctggcccag	ctgcacgcag	cctacctcag	cccccggcac	23220
ctggtgctca	tcttgagct	gtgctctggg	cccgaagctg	tcccctgcct	ggccgagagg	23280
gcctcctact	cagaatccga	ggtgaaggac	tacctgtggc	agatgttgag	tgccaccacg	23340
tacctgcaca	accagcacat	cctgcacctg	gacctgaggt	ccgagaacat	gatcatcacc	23400
gaatacaacc	tgctcaaggt	cgtggacctg	ggcaatgcac	agagcctcag	ccaggagaag	23460
gtgctgccct	cagacaagtt	caaggactac	ctagagacca	tggctccaga	gctcctggag	23520
ggccaggggg	ctgttccaca	gacagacatc	tgggccatcg	gtgtgacagc	cttcatcatg	23580
ctgagcgccg	agtacccggt	gagcagcgag	ggtgcacgcg	acctgcagag	aggactgcgc	23640
aaggggctgg	tccggctgag	ccgctgctac	gcggggctgt	ccggggggcgc	cgtggccttc	23700
ctgcgcagca	ctctgtgctg	ccagccctgg	ggccggccct	gcgcgtccag	ctgcctgcag	23760
tgcccgtggc	taacagagga	gggcccggcc	tgttcgcggc	ccgcgcccgt	gaccttccct	23820
accgcgcggc	tgcgctctt	cgtgcgcaat	cgcgagaaga	gacgcgcgct	gctgtacaag	23880
aggcacaacc	tggcccaggt	gcgctga				23907

<210> 7

<211> 17

<212> PRT

<213> Artificial Sequence

<220>

<221> VARIANT

<222> 1

<223> The L at position 1 can be I or V.

<221> VARIANT

<222> 3

<223> The amino acid at position 3 can be any amino acid except P.

<221> VARIANT

<222> 5

<223> The amino acid at position 5 can be any amino acid except P.

<221> VARIANT

<222> (6)...(0)

<223> The F at position 6 can be Y, W, M, G, S, T, N, or H.

<221> VARIANT

<222> 7

<223> The S at position 7 can be G or A.

<221> VARIANT

<222> 8

<223> The amino acid at position 8 can be any amino acid

except P or W.

<221> VARIANT  
<222> (9)...(9)  
<223> The L at position 9 can be I, V, C, A, or T.

<221> VARIANT  
<222> (10)...(10)  
<223> The amino acid at position 10 can be any amino acid  
except P or D.

<221> VARIANT  
<222> (11)...(11)  
<223> The amino acid at position 11 can be any amino  
acid.

<221> VARIANT  
<222> (12)...(12)  
<223> The G at position 12 can be S, T, A,  
C, L, I, V, M, F, or Y.

<221> VARIANT  
<222> (13)...(13)  
<223> The amino acid at position 13 can be any amino  
acid and as few as 5, up to 18.

<221> VARIANT  
<222> (14)...(14)  
<223> The L at position 14 can be I, V, M, F, Y,  
W, C, S, T, A, or R.

<221> VARIANT  
<222> (15)...(15)  
<223> The A at position 15 can be I, V, or P.

<221> VARIANT  
<222> (16)...(16)  
<223> The L at position 16 can be I, V, M, F, A, G,  
C, K, or R.

<400> 7  
Leu Gly Xaa Gly Xaa Phe Ser Xaa Leu Xaa Xaa Gly Xaa Leu Ala Leu  
1 5 10 15  
Lys

<210> 8  
<211> 12  
<212> PRT  
<213> Artificial Sequence

<220>  
<221> VARIANT

<222> 1  
 <223> The L at position 1 can be I, V, M, F, Y,  
 or C.

<221> VARIANT  
 <222> 2  
 <223> The amino acid at position 2 can be any amino  
 acid.

<221> VARIANT  
 <222> 3  
 <223> The H at position 3 can be Y.

<221> VARIANT  
 <222> 4  
 <223> The amino acid at position 4 can be any amino  
 acid.

<221> VARIANT  
 <222> 6  
 <223> The L at position 6 can be I, V, M, F, or Y.

<221> VARIANT  
 <222> 8  
 <223> The amino acid at position 8 can be any 2  
 amino acids.

<221> VARIANT  
 <222> (10)...(12)  
 <223> The amino acid at positions 10, 11, and 12 can be  
 any three  
 amino acids selected from the group of L,  
 I, V, M, F, Y, C, and  
 T.

<400> 8  
 Leu Xaa His Xaa Asp Leu Lys Xaa Asn Xaa Xaa Xaa  
 1 5 10

<210> 9  
 <211> 13  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <221> VARIANT  
 <222> 1  
 <223> The L at position 1 can be I, V, M, F, Y,  
 or C.

<221> VARIANT  
 <222> 2  
 <223> The amino acid at position 2 can be any amino  
 acid.

<221> VARIANT  
<222> 3  
<223> The H at position 3 can be Y.

<221> VARIANT  
<222> 4  
<223> The amino acid at position 4 can be any amino  
acid.

<221> VARIANT  
<222> 6  
<223> The L at position 6 can be I, V, M, F, or  
Y.

<221> VARIANT  
<222> 7  
<223> The R at position 7 can be S, T, A, or C.

<221> VARIANT  
<222> (8)...(9)  
<223> The amino acid at positions 8 and 9 can be any 2  
amino acids.

<221> VARIANT  
<222> (10)...(12)  
<223> The amino acid at positions 10, 11, and 12 can be  
any 3 amino acids selected from L, I, V, M, F, Y,  
and C.

<400> 9  
Leu Xaa His Xaa Asp Leu Arg Xaa Xaa Asn Xaa Xaa Xaa  
1 5 10